

**EPA Superfund
Record of Decision:**

**NATIONAL PRESTO INDUSTRIES, INC.
EPA ID: WID006196174
OU 01
EAU CLAIRE, WI
09/30/1991**

09/30/92

VALDAS V. ADAMKUS
REGIONAL ADMINISTRATOR

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I. SITE NAME, LOCATION AND DESCRIPTION

THE NATIONAL PRESTO INDUSTRIES, INC. SUPERFUND SITE (NPI SITE OR SITE) IS LOCATED AT 3925 NORTH HASTINGS WAY IN EAU CLAIRE, WISCONSIN (FIGURE 1). THE SITE OCCUPIES APPROXIMATELY 325 ACRES IN THE SOUTHERN ONE-HALF OF SECTIONS 34 AND 35, TOWNSHIP 28 NORTH, RANGE 9 WEST, CHIPPEWA COUNTY, WISCONSIN AND THE NORTHWESTERN QUARTER OF SECTION 2, TOWNSHIP 27 NORTH, RANGE 9 WEST, EAU CLAIRE COUNTY AND COMPRISES THE PROPERTY OWNED BY NPI.

THE IMMEDIATE VICINITY OF THE SITE IS CHARACTERIZED BY LIGHT RESIDENTIAL AND COMMERCIAL DEVELOPMENT. THE UNINCORPORATED TOWN OF HALLIE IS LOCATED NORTH AND EAST OF THE SITE; HOWEVER, ANNEXATIONS OF INDIVIDUAL PARCELS OF LAND NORTH OF THE SITE INTO THE CITY OF EAU CLAIRE HAVE CREATED AN IRREGULAR TOWN-CITY BOUNDARY NORTH OF THE SITE.

THE SITE IS RELATIVELY FLAT AND ABUTS A SANDSTONE RIDGE TO THE SOUTH THAT IS APPROXIMATELY 200 FEET HIGHER THAN THE SITE. THE AREAS NORTH AND WEST OF THE SITE ARE ALSO RELATIVELY LEVEL GENERALLY SLOPING GRADUALLY TOWARD THE CHIPPEWA RIVER WHICH IS LOCATED APPROXIMATELY TWO MILES NORTH AND WEST OF THE SITE. LAKE HALLIE LIES ABOUT ONE MILE NORTH OF THE SITE AND IS AN IMPOUNDED REMNANT OF A FORMER CHANNEL OF THE CHIPPEWA RIVER.

EXTENDING SOUTHWARD FROM LAKE HALLIE THROUGH THE NORTHWESTERN PORTION OF THE SITE AND WESTERLY TO THE CHIPPEWA RIVER IS A BURIED PRE-GLACIAL VALLEY THAT SERVES AS A PRIMARY DRINKING WATER AQUIFER IN THE EAU CLAIRE AREA. MANY PRIVATE DRINKING WATER WELLS IMMEDIATELY NORTH OF THE SITE ARE FINISHED IN SAND AND GRAVEL DEPOSITS WITHIN THE BURIED VALLEY. THE EAU CLAIRE MUNICIPAL WELL FIELD DRAWS FROM THE SAME BURIED VALLEY DEPOSITS APPROXIMATELY 2 MILES WEST OF THE SITE AND SERVES APPROXIMATELY 60,000 PEOPLE.

NOTABLE SURFACE FEATURES AT THE SITE INCLUDE THE MAIN BUILDING, A NUMBER OF SMALLER BUILDINGS, AND LAGOONS 1, 2, 3 AND 4. LAGOON 1 IS A FORMER SAND AND GRAVEL PIT WITH AN IRREGULAR SHAPE AND IS APPROXIMATELY 1.5 ACRES IN SIZE. LAGOONS 2, 3 AND 4 ARE APPROXIMATELY 14, 3.1 AND 3.4 ACRES IN SIZE, RESPECTIVELY.

A SIX-FOOT CHAIN LINK FENCE SURROUNDS THE WESTERN ONE-THIRD OF THE SITE, INCLUDING THE MAIN BUILDING AND LAGOON 1. ACCESS TO THIS AREA IS RESTRICTED AND ENTRY IS MONITORED BY SECURITY GUARDS. ACCESS TO THE REMAINDER OF THE SITE IS NOT RESTRICTED, ALTHOUGH MUCH OF THE SITE IS SURROUNDED BY A FOUR-FOOT WIRE FENCE.

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II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

THE SITE WAS ORIGINALLY OWNED BY THE UNITED STATES GOVERNMENT (WAR ASSETS ADMINISTRATION) AND OPERATED BY GOVERNMENT CONTRACTORS BETWEEN 1942 AND 1945. TWO CONTRACTORS KNOWN TO HAVE OPERATED AT THE SITE WERE US RUBBER COMPANY (NOW UNIROYAL, INC.) AND WESTERN ELECTRIC (NOW A PART OF AT&T TECHNOLOGIES, INC.). US RUBBER OPERATED A GUNPOWDER AND SMALL ARMS LOADING PLANT AT THE SITE DURING THE PERIOD 1942-1943 UNDER CONTRACT WITH THE ARMY CORPS OF ENGINEERS. THE OPERATION CONSISTED OF FACILITIES FOR POWDER AND CHEMICAL STORAGE AND MIXING, PRIMER MANUFACTURING AND STORAGE, AND FIRING TEST RANGES. MATERIALS USED IN THE PRODUCTION PROCESSES INCLUDED LACQUERS AND SOLVENTS. DURING THIS PERIOD THERE WERE SEVERAL SEWER AND DRAINAGE SYSTEMS FOR WASTE DISPOSAL CONSISTING OF STORM WATER DRAINAGE DITCHES, A SANITARY SEWER AND A DRY WELL OR SEEPAGE PIT SYSTEM. THE SEEPAGE PITS WERE GENERALLY 18 TO 20 FEET IN DIAMETER AND 8 TO 10 FEET DEEP. THEY WERE REINFORCED WITH WOOD OR DRY-LAID CONCRETE BLOCK WALLS. THE PITS WERE DESIGNED TO ACCEPT WASTEWATER WHICH THEN "SEEPED" INTO THE SURROUNDING SOILS. THE VOLUME AND CONTENT OF WASTEWATER DISCHARGES BY US RUBBER IS NOT KNOWN.

IN 1944, THE SITE WAS LEASED TO WESTERN ELECTRIC FOR THE PRODUCTION OF RADAR TUBES FOR NAVY NIGHT FIGHTERS WHICH CONTINUED UNTIL 1945. PRODUCTION PROCESSES REPORTEDLY INCLUDED CUTTING, WASHING, PLATING AND PAINTING, SOME OF WHICH UTILIZED SOLVENTS. THERE ARE NO RECORDS AVAILABLE ON WASTE HANDLING AND DISPOSAL DURING WESTERN ELECTRIC'S TENURE AT THE SITE.

NPI PURCHASED THE SITE FROM THE FEDERAL GOVERNMENT IN SEPTEMBER 1948, AND BETWEEN 1948 AND 1954 MANUFACTURED

HOUSEHOLD APPLIANCES (PRESSURE COOKERS AND CANNERS, COFFEE MAKERS, STEAM IRONS AND DEEP FRYERS) AND OUTBOARD MOTORS. BEGINNING IN 1951, THE SITE WAS ALSO USED FOR DEFENSE-RELATED ACTIVITIES SUCH AS THE MANUFACTURE OF FUSES FOR THE DEPARTMENT OF THE ARMY (DOA) AND PRODUCTION OF MILITARY AIRCRAFT PARTS. PRODUCTION PROCESSES DURING THIS PERIOD INCLUDED METAL FABRICATION, CASTING, WASHING, PLATING, STAMPING, PAINTING, GRINDING AND OTHER MACHINING OPERATIONS. ALTHOUGH SPECIFIC INFORMATION ON WASTE TYPES AND VOLUMES IS LACKING, WASTE STREAMS WOULD TYPICALLY INCLUDE METALS, OIL AND GREASE, SPENT SOLVENTS AND DEGREASING AGENTS, PLATING WASTES AND OTHER MISCELLANEOUS INDUSTRIAL WASTES.

IN 1954, NPI DEDICATED THE SITE ENTIRELY TO DEFENSE-RELATED MANUFACTURING, PRIMARILY THE PRODUCTION OF METAL PARTS FOR 105MM PROJECTILES AND 8-INCH SHELLS, UNDER CONTRACTS WITH THE DEPARTMENT OF THE ARMY. BETWEEN 1959 AND 1965, THERE WAS LITTLE OR NO ACTIVE PRODUCTION AT THE SITE. IN 1966, THE SITE WAS ACTIVATED AND MULTI-SHIFT PRODUCTION CONTINUED UNTIL THE MID-1970S. EXCEPT FOR A SIX-MONTH RESEARCH AND DEVELOPMENT CONTRACT IN LATE-1983 AND EARLY-1984, PRODUCTION OF THE 8-INCH SHELLS CEASED IN 1971. PRODUCTION OF THE 105MM PROJECTILES CEASED IN 1980.

SINCE OCTOBER 1, 1981, NATIONAL DEFENSE CORPORATION (NDC), A WHOLLY OWNED SUBSIDIARY OF NPI, HAS ENTERED INTO ANNUAL STANDBY CONTRACTS WITH THE DOA TO MAINTAIN THE SITE IN A HIGH STATE OF READINESS. THESE CONTRACTS PROVIDE FOR THE STORAGE AND MAINTENANCE OF THE GOVERNMENT-OWNED MACHINERY AND EQUIPMENT WHICH IS IN PLACE AND FULLY OPERATIONAL. THE SITE IS THE DOA'S MOBILIZATION BASE PRODUCER FOR THE 105MM AND EIGHT-INCH PROJECTILES.

DURING GOVERNMENT OWNERSHIP OF THE SITE AND THE EARLY YEARS OF NPI'S OPERATION, SEVEN SEEPAGE PITS, OR DRY WELLS WERE USED FOR DISPOSAL OF WASTE LIQUIDS AND STORM WATER RUNOFF. THESE DRY WELLS WERE PITS 18 TO 20 FEET IN DIAMETER WITH A DEPTH OF 8 TO 10 FEET. TOPS OF THE DRY WELLS WERE LOCATED THREE TO FOUR FEET BELOW THE GROUND SURFACE. FOUR DRY WELLS WERE IN EXISTENCE WHEN NPI PURCHASED THE SITE. AFTER THE SITE WAS PURCHASED, NPI CONSTRUCTED THREE ADDITIONAL DRY WELLS.

THE DRY WELLS WERE EQUIPPED WITH OVERFLOW PIPES TO THE EAU CLAIRE SANITARY SEWER SYSTEM. OVERFLOW FROM SEVERAL OF THE DRY WELLS WAS ALSO DISCHARGED TO ON-SITE DRAINAGE DITCHES (DITCH NO. 2 AND 3). SOME WASTES WERE DISCHARGED TO THE SANITARY SEWER DIRECTLY OR THROUGH THE OVERFLOW PIPES. IN 1952, FOLLOWING SERIOUS OVERFLOW PROBLEMS IN THE EAU CLAIRE SEWER SYSTEM, NPI BEGAN PUMPING WASTES FROM THE DRY WELLS TO A FORMER SAND AND GRAVEL PIT LOCATED SOUTH OF THE MAIN PLANT. THIS IS THE PRESENT LOCATION OF LAGOON 1. HISTORICAL INFORMATION SUGGESTS THAT THE FORMER SAND AND GRAVEL PIT WAS USED AS A DISPOSAL AREA PRIOR TO 1948, I.E. PRIOR TO NPI'S OWNERSHIP OF THE SITE. DRAINAGE FROM DITCH NO. 2 WAS ALSO DIRECTED INTO THE SAND AND GRAVEL PIT.

BY 1966, WHEN MANUFACTURING OPERATIONS WERE REACTIVATED IN RESPONSE TO THE VIETNAM WAR, THE EFFICIENCY OF LAGOON 1 WAS GREATLY REDUCED BY THE ACCUMULATION OF SLUDGES IN THE LAGOON BOTTOM. AS A RESULT, LAGOONS 2, 3 AND 4 WERE CONSTRUCTED DURING 1966-1967 FOR USE AS PERCOLATION PONDS. UNDER THIS WASTE DISPOSAL SYSTEM, PLANT WASTEWATER AND MANUFACTURING COOLING WATER WERE DISCHARGED INTO LAGOON 1 WHICH SERVED AS A SETTLING POND. AS SOLIDS SETTLED AND OILS FLOATED TO THE TOP, THE EFFLUENT WAS PUMPED TO LAGOON 2. DEPENDING ON CAPACITY REQUIREMENTS, WATER FROM LAGOON 2 WAS DISCHARGED TO LAGOONS 3 AND 4 VIA GRAVITY FLOW. THERE WERE PERIODS DURING THE 1970S WHEN WASTEWATER FROM LAGOONS 2 AND 3 WAS DISCHARGED DIRECTLY TO THE EAU CLAIRE SANITARY SEWER SYSTEM. DURING PEAK PRODUCTION IN THE LATE 1960S, 2.5 TO 3.0 MILLION GALLONS PER DAY OF GROUNDWATER WAS WITHDRAWN FROM ON-SITE PRODUCTION WELLS AND A SIMILAR VOLUME OF WASTEWATER WAS GENERATED AND DISCHARGED TO THE LAGOON SYSTEM.

A MAJOR WASTE STREAM GENERATED FROM DEFENSE-RELATED ACTIVITIES WAS A SPENT FORGE COMPOUND. IN ITS PURE FORM, FORGE COMPOUND COMPRISED APPROXIMATELY EQUAL PARTS OF GRAPHITE, ASPHALT AND MINERAL OIL. IT WAS USED AS A LUBRICANT IN THE PRODUCTION OF 105MM PROJECTILES. SPENT FORGE COMPOUND CONTAINS METALS AND VOCs, PRIMARILY 1,1,1-TRICHLOROETHANE, WHICH WAS A SOLVENT USED FOR CLEANING THE FORGE COMPOUND FROM THE MANUFACTURING EQUIPMENT. SPENT FORGE COMPOUND WAS IN THE COOLING WATER DISCHARGED TO LAGOON 1 AND ACCOUNTS FOR THE LARGE VOLUME OF SLUDGE PRESENT IN THE LAGOON BOTTOM. ADDITIONALLY, BETWEEN 1966 OR 1967 AND 1969, SPENT FORGE COMPOUND WAS LANDFILLED ON THE SITE IN AN AREA NORTHEAST OF THE MAIN PLANT THAT HAS BEEN IDENTIFIED AS THE MELBY ROAD DISPOSAL AREA. BEGINNING IN 1969, NPI DEVELOPED A RECLAMATION PROCESS WHEREBY SPENT FORGE COMPOUND COULD BE RECLAIMED AND RECYCLED IN THE MANUFACTURING PROCESS.

IN APRIL 1986, FOLLOWING A COMPLAINT TO THE WDNR, AN ADDITIONAL DISPOSAL AREA WAS DISCOVERED NEAR THE EAST PROPERTY LINE OF THE SITE. THIS HAS BEEN IDENTIFIED AS THE EAST DISPOSAL AREA. AN INVESTIGATION BY WDNR AND NPI REVEALED A NUMBER OF EXPOSED DRUMS CONTAINING VARYING AMOUNTS OF UNKNOWN WASTES. NPI REMOVED THE DRUMS FROM THE AREA, TRANSPORTED THEM TO A SECURE UNUSED LOADING DOCK AT THE MAIN PLANT AND SAMPLED THEM TO CHARACTERIZE DRUM CONTENTS. THESE WASTES WILL BE REMEDIATED IN A MANNER CONSISTENT WITH WASTE MATERIALS IN ON-SITE SOURCE AREAS AS PART OF THE FINAL CLEANUP PLAN FOR THE FACILITY. THE FACILITY COMPRISES THE FULL EXTENT OF CONTAMINATION ATTRIBUTABLE TO PAST WASTE DISPOSAL PRACTICES AT THE NPI SITE AND INCLUDES, BUT IS NOT LIMITED TO, THE NPI SITE AND PLUMES 2 AND 3, AS SHOWN ON FIGURE 5.

FIGURE 2 IS A SITE MAP AND ILLUSTRATES THE WASTE MANAGEMENT AND DISPOSAL AREAS USED DURING THE COURSE OF SITE OPERATIONS BETWEEN THE EARLY 1940S AND 1980.

ON DECEMBER 2, 1985, US EPA ISSUED A GENERAL NOTICE LETTER TO NPI INFORMING THE COMPANY OF ITS POTENTIAL LIABILITY WITH RESPECT TO RESPONSE ACTIONS, PAST OR PLANNED, TAKEN AT THE FACILITY, AND ASKING THEM TO UNDERTAKE A REMEDIAL INVESTIGATION AND FEASIBILITY STUDY (RI/FS). NEGOTIATIONS CONCLUDED IN MAY 1986, WHEN NPI ENTERED INTO AN AGREEMENT WITH US EPA AND THE WDNR TO CONDUCT THE RI/FS AT THE FACILITY. AN ADMINISTRATIVE ORDER BY CONSENT BECAME EFFECTIVE ON JULY 8, 1986.

BASED ON ANALYTICAL DATA GENERATED FROM MONITORING WELL AND PRIVATE WELL SAMPLING DURING THE RI AND RECOMMENDATIONS FROM THE WISCONSIN DIVISION OF HEALTH AND THE AGENCY FOR TOXIC SUBSTANCES AND DISEASE REGISTRY (ATSDR), US EPA ISSUED NPI A UNILATERAL ORDER ON APRIL 25, 1989 PURSUANT TO THE MARCH 31, 1988 RECORD OF DECISION FOR THE EAU CLAIRE MUNICIPAL WELL FIELD SUPERFUND SITE. THE ORDER BECAME EFFECTIVE ON MAY 5, 1989. THE ORDER REQUIRED NPI TO PROVIDE BOTTLED WATER TO A PORTION OF THE TOWN OF HALLIE AND CITY OF EAU CLAIRE DEFINED AS THE AFFECTED AREA (FIGURE 3). THE AFFECTED AREA IS AN AREA IN WHICH PRIVATE WELLS ARE CONTAMINATED OR THREATENED BY CONTAMINATION FROM CONFIRMED ON-SITE SOURCES AT NPI, THE AFFECTED AREA COMPRISES APPROXIMATELY 350 ACRES (EXCLUDING THE PROPERTY OWNED BY NPI) AND HAS APPROXIMATELY 174 RESIDENCES WITH A TOTAL ESTIMATED POPULATION OF 425. THERE ARE ALSO ABOUT 40 COMMERCIAL BUSINESSES LOCATED IN THE AFFECTED AREA. THE ORDER ALSO REQUIRED NPI TO: (1) UNDERTAKE A PHASED FEASIBILITY STUDY (PFS) TO IDENTIFY AND EVALUATE REMEDIAL ALTERNATIVES FOR A PERMANENT ALTERNATE AND SAFE DRINKING WATER SUPPLY FOR THE AFFECTED AREA; AND (2) CONDUCT ADDITIONAL SAMPLING TO FULLY DEFINE THE EXTENT OF PRIVATE WELL CONTAMINATION.

FOUR ADDITIONAL POTENTIALLY RESPONSIBLE PARTIES (PRPS) HAVE BEEN IDENTIFIED FOR THE FACILITY. THEY ARE NDC; AT&T TECHNOLOGIES, INC.; UNIROYAL, INC.; AND THE UNITED STATES DEPARTMENT OF THE ARMY. GENERAL NOTICE LETTERS RELATIVE TO THE PERMANENT ALTERNATE DRINKING WATER SUPPLY FOR THE AFFECTED AREA WERE ISSUED TO EACH OF THE PRPS ON JULY 24, 1990.

ON AUGUST 1, 1990, A RECORD OF DECISION (ROD) WAS ISSUED BY US EPA PRESENTING THE SELECTED REMEDIAL ACTION FOR A PERMANENT REPLACEMENT DRINKING WATER SUPPLY FOR THE AFFECTED AREA. UNDER THE TERMS OF THE ROD, THE CITY OF EAU CLAIRE IS TO EXTEND ITS MUNICIPAL DRINKING WATER TO RESIDENCES AND BUSINESSES IN THE AFFECTED AREA THAT HAVE ANNEXED TO THE CITY. THE REMAINING PORTIONS OF THE AFFECTED AREA WILL BE SERVICED BY THE HALLIE SANITARY DISTRICT NO. 1 (SANITARY DISTRICT).

REMEDIAL DESIGN WAS INITIATED IN SEPTEMBER 1990 AND FORMALLY APPROVED BY US EPA ON FEBRUARY 27, 1991. ON MARCH 8, 1991, US EPA ISSUED AN ADMINISTRATIVE UNILATERAL ORDER TO NPI AND NDC DIRECTING THE COMPANIES TO PROVIDE ALTERNATE DRINKING WATER SUPPLY SYSTEMS FOR THE AFFECTED AREA IN THE CITY OF EAU CLAIRE AND TOWN OF HALLIE IN ACCORDANCE WITH THE APPROVED REMEDIAL DESIGN. NPI AND NDC ARE CURRENTLY PROVIDING FUNDS TO THE SANITARY DISTRICT AND THE CITY OF EAU CLAIRE FOR CONSTRUCTION OF THE DRINKING WATER SYSTEMS. THE SANITARY DISTRICT BEGAN CONSTRUCTION IN APRIL 1991, AND THE CITY OF EAU CLAIRE INITIATED CONSTRUCTION IN JULY 1991 FOR THEIR RESPECTIVE COMPONENTS OF THE SELECTED REMEDY. CONSTRUCTION IS ONGOING AND THE DRINKING WATER SYSTEMS ARE EXPECTED TO BE COMPLETED AND OPERATIONAL BY THE END OF 1991.

GENERAL NOTICE LETTERS RELATIVE TO THIS INTERIM ACTION FOR ON-SITE CONTAMINATED GROUNDWATER WERE ISSUED TO EACH OF THE PRPS ON SEPTEMBER 19, 1991.

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III. COMMUNITY RELATIONS ACTIVITIES

DURING THE RI/FS PROCESS, MANY COMMUNITY RELATIONS ACTIVITIES HAVE BEEN PERFORMED BY US EPA WITH CONSIDERABLE SUPPORT PROVIDED BY WDNR. IN OCTOBER 1987, US EPA ESTABLISHED INFORMATION REPOSITORIES AT THE HALLIE TOWN HALL AND THE CHIPPEWA FALLS PUBLIC LIBRARY. IN JUNE 1986, US EPA ISSUED A PRESS RELEASE ANNOUNCING THE FINALIZATION OF THE RI/FS CONSENT ORDER SIGNED BY US EPA, WDNR AND NPI; AND HELD A 30-DAY PUBLIC COMMENT PERIOD ON THE CONSENT ORDER.

IN OCTOBER 1987, US EPA CONDUCTED COMMUNITY INTERVIEWS WITH LOCAL OFFICIALS AND INTERESTED RESIDENTS TO LEARN OF LOCAL CONCERNS AND ISSUES FOR INCLUSION IN THE AGENCY'S COMMUNITY RELATIONS PLAN. AN RI "KICKOFF" MEETING WAS HELD (APPROXIMATELY 75 PEOPLE ATTENDED) WITH PRESS RELEASES AND ADVERTISEMENTS ISSUED TO ANNOUNCE THE EVENT. A FACT SHEET WAS ALSO PREPARED AND DISTRIBUTED IN CONJUNCTION WITH THE MEETING.

THE COMMUNITY RELATIONS PLAN WAS FINALIZED IN JUNE 1988. AN ADVERTISEMENT RAN IN THE CHIPPEWA FALLS HERALD-TELEGRAM AND EAU CLAIRE LEADER-TELEGRAM ANNOUNCING THE AVAILABILITY OF TECHNICAL ASSISTANCE GRANTS.

A PUBLIC MEETING (APPROXIMATELY 90 PEOPLE ATTENDED) WAS HELD IN APRIL 1989 TO PROVIDE AN UPDATE OF THE RI, AND INCLUDE A DISCUSSION BY THE WISCONSIN DIVISION OF HEALTH ON PRIVATE WELL SAMPLING RESULTS AND POTENTIAL HEALTH ISSUES. A FACT SHEET SUMMARIZED PRIVATE WELL SAMPLING RESULTS, THE PROPOSED DISTRIBUTION OF BOTTLED WATER TO AFFECTED RESIDENTS AND A PROPOSED STUDY TO EVALUATE ALTERNATIVES FOR A PERMANENT AND SAFE DRINKING WATER SUPPLY FOR THE AFFECTED AREA. THE MEETING WAS ADVERTISED IN THE TWO LOCAL NEWSPAPERS AND PRESS RELEASES WERE SENT TO ALL LOCAL MEDIA.

US EPA PREPARED AND DISTRIBUTED LETTERS IN JUNE 1989 TO BUSINESSES AND RESIDENCES WHOSE WELLS WERE SAMPLED IN APRIL 1989. THOSE WHO LIVED IN THE AFFECTED AREA WERE ENCOURAGED TO PARTICIPATE IN THE BOTTLED WATER PROGRAM WHICH WAS OUTLINED IN THE UNILATERAL ORDER ISSUED TO NPI IN APRIL 1989.

US EPA AND WDNR HELD AN INFORMAL AVAILABILITY SESSION (APPROXIMATELY 20 PEOPLE ATTENDED) IN AUGUST 1989 TO UPDATE RESIDENTS ON THE RI/FS AND THE PFS. THE MEETING WAS ADVERTISED IN BOTH LOCAL NEWSPAPERS AND PRESS RELEASES WERE SENT TO ALL LOCAL MEDIA.

IN DECEMBER 1989, A PRESS RELEASE WAS ISSUED ANNOUNCING THE RELEASE OF THE PFS REPORT AND THE PROPOSED PLAN WHICH EVALUATED ALTERNATIVES FOR THE REPLACEMENT OF CONTAMINATED DRINKING WATER SUPPLIES IN THE AFFECTED AREA. ADVERTISEMENTS WERE PLACED IN BOTH NEWSPAPERS ANNOUNCING THE BEGINNING OF THE PUBLIC COMMENT PERIOD AND THE AVAILABILITY OF THE PFS AND PROPOSED PLAN, SUMMARIZING REMEDIAL ALTERNATIVES DISCUSSED IN DETAIL IN THE PFS, AND ANNOUNCING A PUBLIC MEETING TO ANSWER QUESTIONS AND ACCEPT PUBLIC COMMENTS ON THE PROPOSED PLAN. A FACT SHEET SUMMARIZING THE PFS REPORT, REMEDIAL ALTERNATIVES AND US EPA'S PREFERRED ALTERNATIVE WAS ALSO DISTRIBUTED IN DECEMBER. AN ADMINISTRATIVE RECORD, CONTAINING SITE-RELATED DOCUMENTS RELEVANT TO THE PROPOSED PLAN, THE RI/FS AND THIS ROD, WAS ESTABLISHED AT THE CHIPPEWA FALLS PUBLIC LIBRARY IN CONJUNCTION WITH THE INFORMATION REPOSITORY. AT THE REQUEST OF HALLIE TOWN BOARD MEMBERS AND HALLIE RESIDENTS, AN ADMINISTRATIVE RECORD WAS ALSO ESTABLISHED AT THE HALLIE TOWN HALL.

THE PUBLIC MEETING WAS HELD ON JANUARY 18, 1990 AND ATTENDED BY APPROXIMATELY 130 PEOPLE. US EPA AND WDNR EXPLAINED THE PFS AND PROPOSED PLAN, ANSWERED QUESTIONS, AND ACCEPTED PUBLIC COMMENTS ON THE REMEDIAL ALTERNATIVES DISCUSSED IN THE PFS AND PROPOSED PLAN. THE PUBLIC COMMENT PERIOD ORIGINALLY WAS SCHEDULED TO RUN FOR 45 DAYS, JANUARY 4 THROUGH FEBRUARY 19, 1990; HOWEVER, AT THE REQUEST OF MANY RESIDENTS, THE CITY OF EAU CLAIRE AND NPI, IT WAS EXTENDED UNTIL MARCH 5, 1990. THIS 15-DAY EXTENSION WAS ADVERTISED IN BOTH LOCAL NEWSPAPERS. THE COMMUNITY RELATIONS COORDINATOR TELEPHONED NPI, LOCAL OFFICIALS AND REPORTERS FROM ALL LOCAL MEDIA TO INFORM THEM OF THE EXTENSION. A TRANSCRIPT OF THE PUBLIC MEETING WAS PLACED IN THE INFORMATION REPOSITORIES.

IN AUGUST 1991, A PRESS RELEASE WAS ISSUED ANNOUNCING THE AVAILABILITY OF THE PFS AND PROPOSED PLAN ADDRESSING AN INTERIM REMEDIAL ACTION FOR ON-SITE CONTAMINATED GROUNDWATER. THE PUBLIC COMMENT PERIOD BEGAN ON AUGUST 23, 1991. ADVERTISEMENTS WERE PLACED IN BOTH LOCAL NEWSPAPERS ANNOUNCING THE AVAILABILITY OF THE PFS AND PROPOSED PLAN, SUMMARIZING THE REMEDIAL ALTERNATIVES CONSIDERED FOR THIS INTERIM ACTION, AND ANNOUNCING A PUBLIC MEETING. A FACT SHEET SUMMARIZING THE PFS REPORT, PROPOSED PLAN AND US EPA'S AND WDNR'S RECOMMENDED ALTERNATIVE WAS DISTRIBUTED IN AUGUST 1991 TO INTERESTED PARTIES ON US EPA'S MAILING LIST. AN ADMINISTRATIVE RECORD UPDATE, CONTAINING FACILITY-RELATED DOCUMENTS RELEVANT TO THE PROPOSED PLAN, THE RI/FS AND THIS ROD WAS FORWARDED TO THE INFORMATION REPOSITORIES.

THE PUBLIC MEETING WAS HELD ON SEPTEMBER 12, 1991 AT THE HALLIE TOWN HALL AND ATTENDED BY APPROXIMATELY 40 PEOPLE AND MEMBERS OF THE LOCAL MEDIA. US EPA AND WDNR EXPLAINED THE PFS AND PROPOSED PLAN, UPDATED THE PROGRESS OF THE RI/FS, ANSWERED QUESTIONS, AND ACCEPTED PUBLIC COMMENTS ON THE REMEDIAL ALTERNATIVES DISCUSSED IN THE PFS AND PROPOSED PLAN. THE PUBLIC COMMENT PERIOD ENDED ON SEPTEMBER 23, 1991. A TRANSCRIPT OF THE PUBLIC MEETING IS INCLUDED IN THE ADMINISTRATIVE RECORD.

INTEREST IN THE FACILITY HAS BEEN HIGH SINCE 1985 ON THE PART OF HALLIE RESIDENTS, THE MEDIA, CITY OF EAU CLAIRE AND TOWN OF HALLIE OFFICIALS AND OTHER ELECTED OFFICIALS. US EPA, WDNR AND WISCONSIN DIVISION OF HEALTH REPRESENTATIVES HAVE HAD NUMEROUS PERSONAL VISITS AND TELEPHONE CONVERSATIONS WITH MEMBERS OF THE MEDIA, RESIDENTS, LOCAL OFFICIALS AND NPI SINCE THE BEGINNING OF THE RI/FS. THE MAILING LIST AND INFORMATION HAVE BEEN UPDATED TO ENSURE THAT THE COMMUNITY RECEIVES ACCURATE INFORMATION IN A TIMELY FASHION.

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IV. ROLE AND SCOPE OF THIS INTERIM ACTION

THIS INTERIM ACTION IS LIMITED TO PLUME CONTAINMENT AT THE MELBY ROAD DISPOSAL AREA AND THE SOUTHWESTERN PORTION OF THE SITE DOWNGRAIENT OF LAGOON NO. 1 AND DITCH NO. 3. UNDER THIS INTERIM ACTION, GROUNDWATER WILL BE REMOVED AT THESE SOURCE AREAS, TREATED TO REMOVE VOCs AND DISCHARGED TO THE CHIPPEWA RIVER.

THIS INTERIM ACTION WILL PREVENT THE OFF-SITE MOVEMENT OF CONTAMINANT PLUMES FROM THESE ON-SITE SOURCE AREAS AND PREVENT FURTHER ENVIRONMENTAL DEGRADATION. THE FINAL CLEANUP PLAN WILL ADDRESS OFF-SITE GROUNDWATER AND ON-SITE SOURCE AREAS IN A MANNER THAT PROTECTS THE ENVIRONMENT AND REDUCES HEALTH RISKS ASSOCIATED WITH CONTAMINATION AT THE FACILITY. CLEANUP ALTERNATIVES ARE CURRENTLY BEING DEVELOPED AND ANALYZED FOR ON-SITE SOURCES OF CONTAMINATION THAT INCLUDE LAGOON 1, DITCH NO. 3, MELBY ROAD DISPOSAL AREA, EAST DISPOSAL AREA AND SEVERAL OF THE DRY WELLS. DATA FROM THE RECENT AND EXTENSIVE GROUNDWATER SAMPLING ALSO IS BEING EVALUATED TO DETERMINE THE APPROPRIATE REMEDIAL ACTION(S) FOR OFF-SITE GROUNDWATER.

US EPA ANTICIPATES THAT THIS INTERIM ACTION WILL BE CONSISTENT WITH PLANNED FUTURE ACTIONS, I.E. THE FINAL PHASE OF CLEANUP AT THE FACILITY. PREVENTING GROUNDWATER DEGRADATION BY MEANS OF PLUME CONTAINMENT RESULTS IN SIGNIFICANT RISK REDUCTION IN THE AQUIFER DOWNGRAIENT OF ON-SITE SOURCE AREAS. BECAUSE OF THE COMPLEXITY OF THE FACILITY (MULTIPLE SOURCE AREAS AND GROUNDWATER CONTAMINATION PLUMES), US EPA BELIEVES THIS INTERIM ACTION WILL EXPEDITE THE COMPLETION OF TOTAL CLEANUP AT THE FACILITY. DATA GATHERED DURING IMPLEMENTATION OF THIS INTERIM ACTION WILL BE USEFUL IN THE SELECTION OF ANY FINAL ACTION AT THE FACILITY.

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V. SUMMARY OF SITE CHARACTERISTICS

THE RI AT THE FACILITY HAS INVOLVED NUMEROUS SAMPLING AND INVESTIGATIVE ACTIVITIES SINCE LATE-1986. WORK CONDUCTED DURING THE RI HAS INCLUDED SAMPLING AND ANALYSIS OF GROUNDWATER, SOILS, SOIL VAPOR AND WASTE MATERIALS, AND GEOLOGIC AND HYDROGEOLOGIC STUDIES.

APPROXIMATELY 100 GROUNDWATER MONITORING WELLS HAVE BEEN INSTALLED ON AND OFF SITE BETWEEN 1986 AND 1991 AS PART OF THE RI TO DETERMINE THE NATURE AND EXTENT OF CONTAMINATION AT THE FACILITY. MONITORING WELLS HAVE BEEN INSTALLED AT THE WATER TABLE, AT INTERMEDIATE DEPTHS AND AT THE BOTTOM OF THE SAND AND GRAVEL AQUIFER, AND IN THE UNDERLYING BEDROCK AQUIFER. WATER TABLE WELL SCREENS ALSO EXTEND INTO THE CAPILLARY FRINGE. NPI HAS SAMPLED MONITORING WELLS INSTALLED BY US EPA FROM 1985-87 FOR THE RI/FS AT THE EAU CLAIRE MUNICIPAL WELL FIELD (ECMWF) SUPERFUND SITE AND WELLS INSTALLED BY WDNR IN 1985. THE MOST RECENT SAMPLING EVENT CONCLUDED IN APRIL 1991 AND ENCOMPASSED MORE THAN 50 MONITORING WELLS, INCLUDING 19 WELLS WHICH WERE INSTALLED WEST OF THE NPI SITE IN DECEMBER 1990 AND JANUARY 1991 TO FURTHER DEFINE PLUME 2, AS DESCRIBED IN "3)" BELOW AND ILLUSTRATED ON FIGURE 5. ANALYSIS OF GROUNDWATER SAMPLES HAS SHOWN THE PRESENCE OF AT LEAST THREE CONTAMINANT PLUMES EXTENDING SIGNIFICANT DISTANCES FROM THE NPI SITE. THE PRIMARY CONTAMINANTS IN THE PLUMES ARE THE VOCs 1,1,1-TRICHLOROETHANE (TCA), TRICHLOROETHENE (TCE), 1,1-DICHLOROETHANE (1,1-DCA), 1,1-DICHLOROETHENE (1,1-DCE), TETRACHLOROETHENE (PCE) AND 1,2-DICHLOROETHENE (1,2-DCE). THE DATA HAS NOT SHOWN THE PRESENCE OF CONCENTRATED LOW DENSITY CONTAMINANTS OR DENSE NON-AQUEOUS PHASE LIQUIDS (DNAPLs).

DATA GENERATED DURING THE RI ESTABLISH THE FOLLOWING FINDINGS WHICH PROVIDE THE RATIONALE AND DOCUMENTATION FOR PROCEEDING WITH THIS INTERIM ACTION:

1) ON SITE, GROUNDWATER GENERALLY FLOWS FROM THE SOUTHEAST TO THE NORTHWEST; HOWEVER, ONCE GROUNDWATER MOVES OFF SITE, IT IS INFLUENCED BY THE LOCATION AND ORIENTATION OF A PREGLACIAL BURIED VALLEY CONTAINING SAND AND GRAVEL DEPOSITS TO DEPTHS OF 150 FEET. THE BURIED VALLEY SYSTEM EXTENDS FROM LAKE HALLIE, WHICH IS LOCATED APPROXIMATELY ONE MILE NORTH OF THE SITE, TO THE SOUTHWEST THROUGH THE NORTHWEST PORTION OF THE SITE WHERE IT TURNS WEST AND EXTENDS TO THE EAU CLAIRE MUNICIPAL WELL FIELD AND THE CHIPPEWA RIVER, APPROXIMATELY 2.5 MILES WEST OF THE SITE.

2) GROUNDWATER FLOW IS COMPLICATED BY A GROUNDWATER DIVIDE THAT EXTENDS SOUTHEAST TO NORTHWEST ACROSS THE NPI SITE AND THE BURIED VALLEY. GROUNDWATER NORTH AND EAST OF THE DIVIDE ENTERS THE BURIED VALLEY AND FLOWS NORTH TO LAKE HALLIE. GROUNDWATER SOUTH AND WEST OF THE DIVIDE ENTERS THE BURIED VALLEY AND FLOWS WESTWARD TO THE EAU CLAIRE MUNICIPAL WELL FIELD AND THE CHIPPEWA RIVER. FIGURE 4 ILLUSTRATES THE APPROXIMATE LOCATIONS OF THE BURIED VALLEY AND GROUNDWATER DIVIDE.

3) PLUME 2 IS LOCATED SOUTH AND WEST OF THE GROUNDWATER DIVIDE. IT ORIGINATES AT THE NPI SITE IN THE VICINITY OF LAGOON 1 AND DITCH NO. 3, AND EXTENDS WESTERLY THROUGH AN INDUSTRIAL PARK (LOCATED APPROXIMATELY 1 MILE WEST OF THE SITE) AND TOWARD THE ECMWF. PLUME 2 IS CHARACTERIZED BY THE OCCURRENCE OF TCE AND TCA. CONCENTRATIONS FOR EACH OF THESE CONTAMINANTS ARE HIGHEST IN MONITORING WELLS LOCATED ON SITE OR IMMEDIATELY DOWNGRAIENT OF THE SITE. FIGURE 5 SHOWS THE APPROXIMATE BOUNDARIES OF PLUME 2. (FIELDWORK IS CONTINUING WEST OF THE NPI SITE TO FULLY DEFINE THE EXTENT OF CONTAMINATION ATTRIBUTABLE TO RELEASES AT THE NPI SITE).

4) TCE IS PRESENT IN PLUME 2 AT LEVELS ABOVE THE FEDERAL MAXIMUM CONTAMINANT LEVEL (MCL) OF 5 PARTS PER BILLION (PPB) AND THE WISCONSIN ENFORCEMENT STANDARD (ES), ALSO 5 PPB. TCE RANGES IN CONCENTRATION FROM NON DETECT TO 49 PPB, WITH THE MAXIMUM CONCENTRATION OBSERVED IN MONITORING WELL MW-34A WHICH IS LOCATED ON SITE AND IMMEDIATELY DOWNGRAIENT OF LAGOON 1. LEVELS OF TCA IN PLUME 2 RANGE FROM NON DETECT TO 180 PPB, WHICH WAS OBSERVED IN MONITORING WELL RW-15 THAT WAS SAMPLED DURING THE ECMWF RI. THE MCL AND WISCONSIN ES FOR TCA IS 200 PPB.

5) PLUME 3 ORIGINATES AT THE MELBY ROAD DISPOSAL AREA AND EXTENDS GENERALLY WEST-NORTHWEST WHERE, UNDER THE INFLUENCE OF THE GROUNDWATER DIVIDE AND BURIED VALLEY, IT TURNS NORTH-NORTHEAST TOWARD LAKE HALLIE. PLUME 3 IS CHARACTERIZED BY PCE, TCA, 1,1-DCA AND 1,1-DCE NEAR THE SOURCE AND TCA AND 1,1-DCA AT MONITORING POINTS FURTHER DOWNGRAIENT. FIGURE 5 SHOWS THE APPROXIMATE BOUNDARIES OF PLUME 3.

6) TCA IS PRESENT IN PLUME 3 ABOVE THE MCL AND WISCONSIN ES WITH A MAXIMUM OBSERVED CONCENTRATION OF 510 PPB. THE MAXIMUM OBSERVED CONCENTRATION FOR PCE IS 12 PPB. THE MCL FOR PCE IS 5 PPB AND THE WISCONSIN ES IS 1 PPB. THE MAXIMUM OBSERVED CONCENTRATION FOR 1,1-DCA AND 1,1-DCE ARE 210 PPB AND 5.6 PPB, RESPECTIVELY. THERE IS CURRENTLY NO MCL FOR 1,1-DCA; HOWEVER, THE WISCONSIN ES IS 850 PPB. THE MCL AND WISCONSIN ES FOR 1,1-DCE IS 7 PPB. CONCENTRATIONS OF EACH OF THE ABOVE CONTAMINANTS ARE HIGHEST IN ON-SITE MONITORING WELLS AT THE SOURCE AREA AND GENERALLY DECLINE IN VALUE WITH INCREASING DISTANCE FROM THE SOURCE.

FIGURE 6 SHOWS THE LOCATIONS OF US EPA, WDNR AND NPI MONITORING WELLS SAMPLED AT AND NEAR THE NPI SITE. DATA FROM THESE WELLS WAS USED IN EVALUATING ALTERNATIVES FOR THIS INTERIM ACTION.

GROUNDWATER SAMPLES COLLECTED DURING THE EARLY PHASES OF THE RI IN 1987-88 WERE ANALYZED FOR THE ENTIRE LIST OF PRIORITY POLLUTANT CONTAMINANTS, INCLUDING METALS, VOCS AND SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs). THE DATA DID NOT INDICATE THE PRESENCE OF IDENTIFIABLE SVOCs NOR WIDESPREAD ELEVATED METALS IN GROUNDWATER, SO THE ANALYTICAL PARAMETER LIST FOR FUTURE SAMPLES WAS REDUCED TO VOCS. FOR PURPOSES OF EVALUATING ALTERNATIVES FOR THIS INTERIM ACTION, THE RECENT GROUNDWATER SAMPLING INCLUDED METALS ANALYSIS FOR MONITORING WELLS AT THE SOURCE AREAS AND SUBSTANTIATES THE FINDINGS OF THE EARLIER DATA. BOTH SETS OF DATA INDICATE ELEVATED CONCENTRATIONS FOR CADMIUM, LEAD AND NICKEL IN ISOLATED ON-SITE MONITORING WELLS.

TABLES 1 AND 2 PRESENT VOC DATA FOR ON-SITE AND OFF-SITE MONITORING WELLS, RESPECTIVELY, FOR GROUNDWATER SAMPLES COLLECTED BY NPI DURING THE PERIOD 1987-91. METALS DATA FOR THE SAME SERIES OF MONITORING WELLS IS PRESENTED IN TABLES 3 AND 4. US EPA COLLECTED SPLIT SAMPLES FOR SELECTED MONITORING WELLS DURING THE SAMPLING CONDUCTED BY NPI IN APRIL 1991, AND THOSE RESULTS ARE PRESENTED IN TABLE 5.

NPI IS PRESENTLY CONDUCTING ADDITIONAL FIELD WORK NEAR THE EAU CLAIRE COUNTY AIRPORT THAT INCLUDES THE INSTALLATION AND SAMPLING OF MONITORING WELLS. THIS ADDITIONAL WORK IS BEING CONDUCTED IN ACCORDANCE WITH

THE APPROVED RI/FS WORK PLAN FOR THE FACILITY WHICH REQUIRES NPI TO TRACK GROUNDWATER CONTAMINATION ORIGINATING AT THE NPI SITE. NEW DATA WILL BE INCLUDED IN THE INFORMATION REPOSITORIES AS IT BECOMES AVAILABLE.

CONFIRMATORY SAMPLING OF ALL NEWLY INSTALLED AND SELECTED ON- AND OFF-SITE MONITORING WELLS WILL BE CONDUCTED IN EARLY FALL 1991. ANALYTICAL PARAMETERS WILL INCLUDE THE FULL TARGET COMPOUND LIST (TCL) AND TARGET ANALYTE LIST (TAL) FOR ORGANIC COMPOUNDS AND INORGANICS, RESPECTIVELY. DATA WILL SERVE TO CONFIRM THE FINDINGS OF THE SAMPLING CONDUCTED IN EARLY 1991, DETERMINE THE NEED FOR ADDITIONAL PRETREATMENT OF EXTRACTED GROUNDWATER BEYOND THAT PROVIDED IN THE SELECTED REMEDY, SATISFY WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM (WPDES) PERMITTING REQUIREMENTS, AND SUPPORT THE EVALUATION AND SELECTION OF REMEDIAL ALTERNATIVES FOR OFF-SITE GROUNDWATER AND ON-SITE SOURCE AREAS.

#SOSR

VI. SUMMARY OF SITE RISKS

CERCLA REQUIRES THAT US EPA PROTECT HUMAN HEALTH AND THE ENVIRONMENT FROM CURRENT AND POTENTIAL EXPOSURE TO HAZARDOUS SUBSTANCES FOUND AT A FACILITY. AS PART OF THE ONGOING RI/FS AT THE NPI FACILITY, US EPA WILL PREPARE A BASELINE RISK ASSESSMENT. THE BASELINE RISK ASSESSMENT DETERMINES WHETHER CONTAMINATION AT THE FACILITY COULD POSE AN UNACCEPTABLE HEALTH RISK OR ENVIRONMENTAL RISK IN THE ABSENCE OF ANY REMEDIAL ACTION. POTENTIAL THREATS TO PUBLIC HEALTH ARE ESTIMATED BY MAKING ASSUMPTIONS ABOUT THE MANNER, FREQUENCY AND LENGTH OF TIME A PERSON COULD BE EXPOSED TO SITE-RELATED CONTAMINANTS.

AS PART OF THE 1990 ROD FOR THE PERMANENT REPLACEMENT OF CONTAMINATED DRINKING WATER SUPPLIES IN THE AFFECTED AREA, US EPA EVALUATED POTENTIAL HEALTH RISKS FOR THE GROUNDWATER INGESTION PATHWAY AT THE FACILITY. THESE RISKS WERE ESTIMATED FOR EACH INDIVIDUAL PRIVATE WELL AND MONITORING WELL IN THE AFFECTED AREA EXHIBITING CONTAMINATION AND WITHIN THE GROUNDWATER FLOW PATH FROM THE ON-SITE SOURCE THROUGH THE AFFECTED AREA. ASSUMING CONTINUED CONSUMPTION OF CONTAMINATED GROUNDWATER WITHIN THE AFFECTED AREA, US EPA CALCULATED A POTENTIAL CARCINOGENIC RISK RANGE OF $9 \times (10^{-7})$ (9 IN 10 MILLION) TO $2 \times (10^{-4})$ (2 IN 10,000) FOR THE GROUNDWATER INGESTION PATHWAY FOR THE COMBINED EFFECTS OF THE CONTAMINANTS OF CONCERN DETECTED IN PRIVATE WELLS AND MONITORING WELLS. THE GREATEST POTENTIAL RISK IS POSED BY CONTAMINANTS DETECTED IN MONITORING WELLS AT THE MELBY ROAD DISPOSAL AREA.

A DRAFT BASELINE RISK ASSESSMENT REPORT FOR THE FACILITY WAS PREPARED BY US EPA IN NOVEMBER 1990. THE DRAFT RISK ASSESSMENT WAS BASED PRIMARILY ON RI DATA COLLECTED PRIOR TO JUNE 1990. THE DRAFT RISK ASSESSMENT WILL BE UPDATED AS PART OF THE FINAL RI/FS FOR THE FACILITY TO REFLECT THE ADDITIONAL DATA COLLECTED SINCE ITS INITIAL PREPARATION. THE FINAL RISK ASSESSMENT WILL QUANTIFY POTENTIAL RISKS TO HUMAN HEALTH AND THE ENVIRONMENT FROM CONTAMINATION AT THE FACILITY, INCLUDING THE CONSUMPTION OF CONTAMINATED GROUNDWATER WITHIN EACH OF THE IDENTIFIED CONTAMINANT PLUMES.

THE 1990 ROD ADDRESSED THE PRINCIPAL THREAT TO HUMAN HEALTH POSED BY CONTAMINATED GROUNDWATER AT THE FACILITY--CONTAMINATED DRINKING WATER SUPPLIES IN THE AFFECTED AREA. HOWEVER, DEGRADATION OF THE ENVIRONMENT IS CONTINUING THROUGH THE RELEASE OF CONTAMINANTS TO SOILS AND GROUNDWATER FROM ON-SITE SOURCE AREAS. GROUNDWATER CONTAMINATED WITH VOCs AT LEVELS ABOVE MCLS AND WISCONSIN GROUNDWATER QUALITY STANDARDS CONTINUES TO MOVE NORTH FROM THE SITE THROUGH THE AFFECTED AREA TO LAKE HALLIE AND WEST FROM THE SITE TOWARD THE EAU CLAIRE MUNICIPAL WELL FIELD AND CHIPPEWA RIVER. CONSISTENT WITH US EPA POLICY, "ROLE OF BASELINE RISK ASSESSMENT IN SUPERFUND REMEDY SELECTION DECISIONS" DATED APRIL 22, 1991, EXCEEDENCES OF MCLS AND WISCONSIN ESS ALONE JUSTIFY THIS INTERIM ACTION. ADDITIONALLY, ACTUAL OR THREATENED RELEASES OF HAZARDOUS SUBSTANCES FROM THE FACILITY, IF NOT ADDRESSED BY THE PREFERRED ALTERNATIVE OR ONE OF THE OTHER ACTIVE MEASURES CONSIDERED, MAY PRESENT A CURRENT OR POTENTIAL THREAT TO PUBLIC HEALTH, WELFARE OR THE ENVIRONMENT.

#DELA

VII. DESCRIPTION OF ALTERNATIVES

NPI AND ITS CONSULTANT CONDUCTED A PFS THAT IDENTIFIED AND EVALUATED IN DETAIL SEVEN ALTERNATIVES TO ADDRESS ON-SITE CONTAMINATED GROUNDWATER. THESE ALTERNATIVES ARE SUMMARIZED BELOW AND ARE DISCUSSED IN GREATER DETAIL IN THE PFS.

ALTERNATIVE 1 - NO ACTION

THE SUPERFUND PROGRAM REQUIRES THAT A "NO-ACTION" ALTERNATIVE BE EVALUATED AT EVERY FACILITY TO ESTABLISH A BASIS FOR COMPARISON WITH THE OTHER ALTERNATIVES CONSIDERED. UNDER THIS ALTERNATIVE, NO CORRECTIVE ACTION REGARDING GROUNDWATER WOULD TAKE PLACE AT THE FACILITY. FURTHER GROUNDWATER DEGRADATION AND MIGRATION WOULD OCCUR SINCE CONTAMINANT PLUMES CONTAINING VOCs AT LEVELS ABOVE MCLs AND WISCONSIN GROUNDWATER QUALITY STANDARDS WOULD CONTINUE TO MOVE OFF SITE IN BOTH NORTHERLY AND WESTERLY DIRECTIONS. PLUME 3 WOULD CONTINUE TO ORIGINATE AT THE MELBY ROAD DISPOSAL AREA AND FLOW TO THE NORTHWEST INTO THE BURIED VALLEY AND THEN NORTHEASTERLY TO LAKE HALLIE WHERE IT DISCHARGES. PLUME 2 WOULD CONTINUE TO ORIGINATE IN THE LAGOON 1-DITCH NO. 3 VICINITY AND FLOW WESTWARD INTO THE BURIED VALLEY AND TOWARD THE EAU CLAIRE MUNICIPAL WELL FIELD AND THE CHIPPEWA RIVER. THE NO ACTION ALTERNATIVE DOES NOT COMPLY WITH THE ACTION-SPECIFIC REQUIREMENTS OF CHAPTER NR 140, WISCONSIN ADMINISTRATIVE CODE (WAC) REGARDING IMPLEMENTATION OF APPROPRIATE RESPONSE ACTION(S) FOR EXCEEDANCES OF ESS. THERE ARE NO COSTS ASSOCIATED WITH IMPLEMENTATION OF ALTERNATIVE 1.

ALTERNATIVE 2 - GROUNDWATER COLLECTION AND DISCHARGE TO SANITARY SEWER

UNDER THIS ALTERNATIVE, A SERIES OF GROUNDWATER EXTRACTION WELLS WOULD BE INSTALLED ALONG THE NORTHERN PROPERTY LINE OF THE NPI SITE AT THE MELBY ROAD DISPOSAL AREA AND IN THE SOUTHWESTERN PORTION OF THE SITE DOWNGRAIENT OF LAGOON NO. 1 AND DRAINAGE DITCH NO. 2. GROUNDWATER WOULD BE PUMPED FROM THESE WELLS TO CAPTURE AND REMOVE CONTAMINATED GROUNDWATER, THUS PREVENTING FURTHER OFF-SITE MOVEMENT OF VOCs IN GROUNDWATER FROM THESE SOURCE AREAS. EXTRACTED GROUNDWATER WOULD THEN BE DISCHARGED INTO THE SEWER SYSTEM FOR THE CITY OF EAU CLAIRE WHERE THE WATER WOULD BE TREATED AT THE CITY'S WASTEWATER TREATMENT PLANT (PUBLICLY-OWNED TREATMENT WORKS OR POTW). IMPLEMENTATION OF THIS ALTERNATIVE WOULD REQUIRE CONSTRUCTION OF A PIPELINE FROM THE EXTRACTION WELLS TO EXISTING ON-SITE SANITARY SEWERS.

A PUMP TEST WAS RECENTLY COMPLETED AT THE MELBY ROAD DISPOSAL AREA TO DEFINE AQUIFER CHARACTERISTICS. (THERE ARE PRESENTLY TWO 5-INCH DIAMETER WELLS WITH 40 FEET OF SCREEN INSTALLED FROM THE WATER TABLE TO THE TOP OF THE BEDROCK FORMATION AT THE MELBY ROAD DISPOSAL AREA). BASED ON INTERPRETATION OF THE DATA, IT IS ESTIMATED THAT THESE TWO EXTRACTION WELLS PUMPING AT A TOTAL COMBINED RATE OF 200 GALLONS PER MINUTE (GPM) WILL SUFFICIENTLY CAPTURE THE CONTAMINANT PLUME AT THE MELBY ROAD DISPOSAL AREA. ASSUMING THE SAME AQUIFER CHARACTERISTICS AT THE SOUTHWESTERN PORTION OF THE SITE, IT IS ESTIMATED THAT AN ADDITIONAL TWO TO THREE 5- TO 8-INCH DIAMETER EXTRACTION WELLS PUMPING AT A COMBINED RATE OF 200 TO 300 GPM WOULD BE REQUIRED TO CAPTURE CONTAMINATED GROUNDWATER FROM THE SOUTHWESTERN PORTION OF THE SITE. FOR PURPOSES OF DEVELOPING COST ESTIMATES, IT IS ASSUMED THAT THREE EXTRACTION WELLS WILL BE REQUIRED IN THE SOUTHWESTERN PORTION OF THE SITE. HOWEVER, FINAL PARAMETERS OF THE GROUNDWATER EXTRACTION SYSTEM WOULD BE DETERMINED AND REFINED DURING REMEDIAL DESIGN AND IMPLEMENTATION OF THE SELECTED REMEDY. A DESCRIPTION OF THE AQUIFER PUMPING TEST AND A DISCUSSION OF THE RESULTS ARE PRESENTED IN A SUMMARY REPORT THAT IS INCLUDED IN THE ADMINISTRATIVE RECORD FOR THE FACILITY.

GROUNDWATER RECOVERED BY CAPTURE WELLS AT THE MELBY ROAD DISPOSAL AREA WOULD BE PUMPED APPROXIMATELY 1,000 FEET TO A MANHOLE ON SITE WHERE THE DISCHARGE PIPE CAN BE CONNECTED TO AN 8-INCH SANITARY SEWER LINE. GROUNDWATER COLLECTED AT THE SOUTHWESTERN PORTION OF THE SITE WOULD BE PUMPED APPROXIMATELY 600 FEET WHERE THE DISCHARGE WOULD BE CONNECTED TO A 15-INCH SANITARY SEWER LINE LOCATED ON SITE.

LONG-TERM GROUNDWATER MONITORING WOULD BE REQUIRED TO MEASURE PROGRESS AND PERFORMANCE OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, VERIFY COMPLETENESS OF CONTAMINANT PLUME CAPTURE AND ENSURE THAT THE GROUNDWATER DISCHARGED TO THE SANITARY SEWER COMPLIES WITH POTW LIMITS ESTABLISHED PURSUANT TO THE CITY OF EAU CLAIRE'S APPROVED PRETREATMENT PROGRAM. THE PRETREATMENT PROGRAM REQUIRES A MUNICIPALITY TO ESTABLISH LOCAL LIMITS FOR INFLUENT INTO A POTW FROM A POTW USER. EXISTING GROUNDWATER DATA INDICATES THAT POTW LIMITS WOULD NOT BE EXCEEDED; HOWEVER, SHOULD FUTURE MONITORING SHOW CONCENTRATIONS ABOVE POTW LIMITS, AN APPROPRIATE FORM OF PRETREATMENT WOULD BE REQUIRED PRIOR TO DISCHARGE TO THE POTW.

ALL ARARS RELATING TO THE REMOVAL AND DISCHARGE OF UNTREATED GROUNDWATER TO THE EAU CLAIRE POTW WOULD BE MET, INCLUDING INFLUENT LIMITS ESTABLISHED UNDER EAU CLAIRE'S PRETREATMENT PROGRAM AND IN ACCORDANCE WITH THE CLEAN WATER ACT (CWA). EXTRACTION WELLS AND GROUNDWATER MONITORING WELLS WOULD COMPLY WITH CHAPTERS NR 112 AND 141, WAC, RESPECTIVELY, WHICH ESTABLISH DESIGN, INSTALLATION AND CONSTRUCTION REQUIREMENTS. TREATED EFFLUENT FROM THE POTW WOULD COMPLY WITH WPDES PERMIT REQUIREMENTS FOR DISCHARGE TO SURFACE WATER. THE

ACTION-SPECIFIC REQUIREMENTS OF CHAPTER NR 140, WAC ARE SATISFIED BY THE EXTRACTION OF CONTAMINATED GROUNDWATER AT THE ON-SITE SOURCE AREAS.

ESTIMATED CAPITAL COSTS FOR IMPLEMENTATION OF ALTERNATIVE 2 WOULD TOTAL \$194,000; ESTIMATED YEARLY OPERATION AND MAINTENANCE COSTS WOULD TOTAL \$156,000 FOR THE FIRST YEAR AND \$105,000 FOR EACH YEAR THEREAFTER. THE 30-YEAR PRESENT WORTH OF ALTERNATIVE 2 WOULD EQUAL APPROXIMATELY \$1.23 MILLION. THESE ESTIMATED COSTS DO NOT INCLUDE USER FEES FOR NPI'S USE OF EAU CLAIRE'S POTW OR PRETREATMENT COSTS, IF NECESSARY.

ALTERNATIVE 3A - GROUNDWATER COLLECTION, ON-SITE TREATMENT BY CASCADE AERATION AND DISCHARGE TO THE CHIPPEWA RIVER VIA STORM SEWER

UNDER THIS ALTERNATIVE CONTAMINATED GROUNDWATER WOULD BE CAPTURED AND REMOVED BY THE SAME SERIES OF EXTRACTION WELLS DISCUSSED FOR ALTERNATIVE 2 AND TREATED BY TWO CASCADE AERATION STRUCTURES LOCATED ON SITE. TREATED GROUNDWATER WOULD THEN BE DISCHARGED VIA STORM SEWERS TO THE CHIPPEWA RIVER.

THE TWO EXTRACTION WELLS LOCATED AT THE MELBY ROAD DISPOSAL AREA WOULD PUMP AT A COMBINED FLOW RATE OF 200 GPM. THE RECOVERED GROUNDWATER WOULD BE PUMPED APPROXIMATELY 1,500 FEET TO A CASCADE AERATION UNIT. FOLLOWING CASCADE AERATION, THE TREATED GROUNDWATER WOULD BE DISCHARGED TO AN EXISTING 12-INCH CITY OF EAU CLAIRE CONCRETE STORM SEWER LOCATED ON THE NPI SITE AND NEAR THE CASCADE AERATION UNIT. IMPLEMENTATION OF THIS ALTERNATIVE WOULD REQUIRE PERMISSION FROM THE CITY OF EAU CLAIRE. IN ADDITION, SOME SEWER RETROFITTING WILL BE NECESSARY TO CLEAR THE STORM SEWER LINES, WHICH HAVE BEEN BLOCKED OFF AND/OR REDIRECTED IN SEVERAL LOCATIONS.

TWO TO THREE WELLS LOCATED IN THE SOUTHWESTERN PORTION OF THE SITE WOULD PUMP AT A COMBINED FLOW RATE OF 200-300 GPM. THE EXTRACTED GROUNDWATER WOULD BE PUMPED APPROXIMATELY 600 FEET TO A SECOND CASCADE AERATION UNIT AND DISCHARGED TO AN EXISTING 24-INCH STORM SEWER, ALSO LOCATED ON THE NPI SITE AND NEAR THE SECOND AERATION UNIT. IT IS NOT EXPECTED THAT COLD WEATHER WILL SIGNIFICANTLY REDUCE THE EFFICIENCY OF THE CASCADE AERATION SYSTEM. HOWEVER, IF NECESSARY, THE SYSTEM WILL BE MODIFIED TO MAINTAIN MAXIMUM VOC REMOVAL DURING THE WINTER MONTHS. THIS MAY INCLUDE ENCLOSING THE CASCADE AERATION STRUCTURE OR INSTALLING HEATING COILS TO REDUCE ICING.

FOR COST ESTIMATES AND COMPARATIVE ANALYSIS OF ALTERNATIVES, IT IS ASSUMED THAT THREE 8-INCH EXTRACTION WELLS WILL BE REQUIRED IN THE SOUTHWESTERN PORTION OF THE SITE AND THAT A CASCADE AERATION SYSTEM COMPRISING A CONCRETE STEP STRUCTURE NINE FEET IN HEIGHT WOULD BE SUFFICIENT TO MEET BAT TREATMENT REQUIREMENTS. IT IS ALSO ASSUMED THAT THE ON-SITE STORM SEWERS WILL ADEQUATELY TRANSPORT GROUNDWATER TO THE CHIPPEWA RIVER.

LONG-TERM MONITORING WOULD BE NECESSARY TO MEASURE PROGRESS AND PERFORMANCE OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, VERIFY COMPLETENESS OF CONTAMINANT PLUME CAPTURE, DETERMINE THE NEED FOR ADDITIONAL TREATMENT OF EXTRACTED GROUNDWATER AND MONITOR COMPLIANCE WITH WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM (WPDES) DISCHARGE LIMITS FOR EFFLUENT DISCHARGE TO THE CHIPPEWA RIVER. WATER SAMPLES WOULD BE ANALYZED FOR US EPA'S TARGET COMPOUND LIST (TCL) AND TARGET ANALYTE LIST (TAL) PARAMETERS FOR ORGANIC COMPOUNDS AND INORGANICS, RESPECTIVELY, FOR PURPOSES OF DETERMINING THE NEED FOR ADDITIONAL TREATMENT OF CONTAMINATED GROUNDWATER PRIOR TO CASCADE AERATION AND TO MONITOR COMPLIANCE WITH THE REQUIREMENTS OF A WPDES PERMIT FOR DISCHARGE OF TREATED GROUNDWATER TO THE CHIPPEWA RIVER. BASED ON EXISTING GROUNDWATER DATA, NO ADDITIONAL TREATMENT OF EXTRACTED GROUNDWATER BEYOND CASCADE AERATION WILL BE REQUIRED TO COMPLY WITH WPDES PERMIT REQUIREMENTS.

ALTERNATIVE 3A WOULD COMPLY WITH ALL ARARS RELATING TO THE REMOVAL AND TREATMENT OF CONTAMINATED GROUNDWATER, INCLUDING THE ACTION-SPECIFIC REQUIREMENTS OF CHAPTER NR 140, WAC. SECTION 301(B)(2) OF THE CWA REQUIRES THE APPLICATION OF ECONOMICALLY AND TECHNOLOGICALLY ACHIEVABLE BEST AVAILABLE TECHNOLOGY (BAT) TO TREAT POLLUTANTS PRIOR TO DISCHARGE. BAT REQUIREMENTS OF THE CWA ARE DETERMINED ON A CASE-BY-CASE BASIS BY WDNR PURSUANT TO CHAPTER NR 220, WAC. WDNR HAS DETERMINED THAT CASCADE AERATION SATISFIES THE BAT REQUIREMENTS OF THE CWA AND CHAPTER NR 220, WAC. GROUNDWATER EXTRACTION WELLS AND MONITORING WELLS WOULD COMPLY WITH CHAPTERS NR 112 AND 141 WHICH ESTABLISH MINIMUM CRITERIA FOR THEIR DESIGN, CONSTRUCTION AND INSTALLATION. DISCHARGE OF TREATED GROUNDWATER TO THE CHIPPEWA RIVER WOULD COMPLY WITH WATER QUALITY STANDARDS AND WPDES PERMIT REQUIREMENTS PURSUANT TO CHAPTERS NR 102, 104, 105 AND 106, WAC. EMISSIONS OF VOCs TO THE ATMOSPHERE BY CASCADE AERATION WOULD COMPLY WITH WISCONSIN'S AIR QUALITY STANDARDS PURSUANT TO CHAPTER NR 445, WAC.

ESTIMATED CAPITAL COSTS FOR IMPLEMENTATION OF ALTERNATIVE 3A WOULD TOTAL \$255,000; ESTIMATED YEARLY OPERATION AND MAINTENANCE COSTS WOULD TOTAL \$163,000 FOR THE FIRST YEAR AND \$104,000 FOR EACH YEAR THEREAFTER. THE 30-YEAR PRESENT WORTH FOR ALTERNATIVE 3A WOULD EQUAL APPROXIMATELY \$1.29 MILLION. IF ADDITIONAL TREATMENT OF CONTAMINATED GROUNDWATER IS REQUIRED, BOTH CAPITAL COSTS AND YEARLY OPERATION AND MAINTENANCE COSTS WILL INCREASE.

ALTERNATIVE 3B - GROUNDWATER COLLECTION, ON-SITE TREATMENT BY AIR STRIPPING TOWER AND DISCHARGE TO THE CHIPPEWA RIVER VIA STORM SEWER

THIS ALTERNATIVE IS IDENTICAL TO ALTERNATIVE 3A WITH THE EXCEPTION THAT, IN LIEU OF AN ON-SITE CASCADE AERATION TREATMENT SYSTEM, AN AIR STRIPPING TOWER WOULD TREAT CONTAMINATED GROUNDWATER PRIOR TO DISCHARGE, AND THE DISCHARGE WOULD BE TO THE CHIPPEWA RIVER.

COLLECTED GROUNDWATER FROM THE MELBY ROAD DISPOSAL AREA WOULD BE PUMPED APPROXIMATELY 5,000 FEET TO THE SOUTHWEST PORTION OF THE SITE WHERE ONE AIR STRIPPER WOULD TREAT THE COMBINED FLOW FROM BOTH EXTRACTION SYSTEMS. THE AIR STRIPPING TOWER WOULD BE DESIGNED TO MAXIMIZE VOC REMOVAL. TREATED GROUNDWATER WOULD THEN BE DISCHARGED TO THE CHIPPEWA RIVER BY WAY OF A CITY OF EAU CLAIRE STORM SEWER LOCATED ON THE NPI SITE. AS WITH ALTERNATIVE 3A, USE OF THE STORM SEWERS WOULD REQUIRE PERMISSION FROM THE CITY OF EAU CLAIRE.

OPERATION AND MAINTENANCE OF THE TREATMENT SYSTEM WOULD INCLUDE ROUTINE MAINTENANCE OF THE PUMPS, FANS AND ELECTRICAL SYSTEMS, AND REPLACEMENT OF THE AIR STRIPPER PACKING WHICH WOULD BE APPROPRIATELY DISPOSED IN A PROPERLY DESIGNED AND APPROVED LANDFILL.

AS WITH ALTERNATIVES 2 AND 3A, LONG-TERM MONITORING WOULD BE NECESSARY TO MEASURE PROGRESS AND PERFORMANCE OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, VERIFY COMPLETENESS OF CONTAMINANT PLUME CAPTURE, DETERMINE THE NEED FOR ANY ADDITIONAL TREATMENT OF EXTRACTED GROUNDWATER AND MONITOR COMPLIANCE WITH WPDES PERMIT REQUIREMENTS FOR DISCHARGE OF TREATED GROUNDWATER TO THE CHIPPEWA RIVER.

THE ARARS IDENTIFIED FOR ALTERNATIVE 3B ARE THE SAME AS THOSE FOR ALTERNATIVE 3A, AND WOULD BE MET WITH THE IMPLEMENTATION OF ALTERNATIVE 3B.

FOR PURPOSES OF ESTIMATING COSTS, IT IS ASSUMED THAT THE ON-SITE STORM SEWER WILL BE OF SUFFICIENT CAPACITY TO RECEIVE AND TRANSPORT TREATED GROUNDWATER TO THE CHIPPEWA RIVER. ESTIMATED CAPITAL COSTS FOR IMPLEMENTATION OF ALTERNATIVE 3 WOULD TOTAL \$336,000; ESTIMATED YEARLY OPERATION AND MAINTENANCE COSTS WOULD TOTAL \$182,000 FOR THE FIRST YEAR AND \$124,000 FOR EACH YEAR THEREAFTER. THE 30-YEAR PRESENT WORTH OF ALTERNATIVE 3B WOULD EQUAL APPROXIMATELY \$1.56 MILLION. AS WITH ALTERNATIVE 3A, IF FURTHER METALS TESTING INDICATES A NEED FOR ADDITIONAL TREATMENT PRIOR TO DISCHARGE TO THE STORM SEWER, CAPITAL COSTS AND OPERATION AND MAINTENANCE COSTS WOULD INCREASE ACCORDINGLY.

ALTERNATIVE 4A - GROUNDWATER COLLECTION, ON-SITE TREATMENT BY CASCADE AERATION AND DISCHARGE TO LAKE HALLIE VIA INSTALLED PIPE

UNDER THIS ALTERNATIVE, GROUNDWATER WOULD BE COLLECTED FROM THE EXTRACTION WELL SYSTEM DESCRIBED IN ALTERNATIVE 2. GROUNDWATER RECOVERED FROM THE SOUTHWESTERN PORTION OF THE SITE WOULD BE PUMPED APPROXIMATELY 5,000 FEET TO THE MELBY ROAD DISPOSAL AREA. A SINGLE CASCADE AERATION UNIT WOULD BE CONSTRUCTED AT THE MELBY ROAD DISPOSAL AREA TO TREAT ALL EXTRACTED GROUNDWATER.

FOLLOWING TREATMENT, THE WATER WOULD BE PUMPED APPROXIMATELY 5,500 FEET THROUGH A DEDICATED 6-INCH PRESSURE LINE TO LAKE HALLIE. A PUMP STATION WOULD BE INSTALLED TO PUMP THE WATER TO LAKE HALLIE. THERE IS APPROXIMATELY A 100-FOOT ELEVATION DROP TO THE LAKE AT THE PROPOSED OUTFALL LOCATION. THUS, IT IS LIKELY THAT THE DISCHARGE PIPE WOULD EXTEND DOWN THE STEEP SLOPE AND INTO THE WATER TO AVOID EROSION THAT WOULD OCCUR IF THE OUTFALL WAS 100 FEET ABOVE THE SHORELINE.

EASEMENTS WOULD LIKELY BE NECESSARY AND/OR LAND PURCHASED TO INSTALL THE PIPELINE. IN ADDITION, THE LAKE HALLIE SHORELINE IS PRIVATELY OWNED AT THE PROPOSED OUTFALL LOCATION, THEREFORE IT WOULD ALSO BE NECESSARY TO OBTAIN RIGHTS TO THE SHORELINE.

LONG-TERM MONITORING WOULD BE REQUIRED TO MEASURE PROGRESS AND PERFORMANCE OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, VERIFY COMPLETENESS OF CONTAMINANT PLUME CAPTURE, DETERMINE THE NEED FOR ANY ADDITIONAL TREATMENT OF EXTRACTED GROUNDWATER, AND MONITOR COMPLIANCE WITH WPDES PERMIT REQUIREMENTS FOR DISCHARGE OF TREATED GROUNDWATER TO LAKE HALLIE.

FOR COST ESTIMATES AND COMPARATIVE ANALYSIS OF ALTERNATIVES, IT IS ASSUMED THAT A CASCADE AERATION SYSTEM COMPRISING A CONCRETE STEP STRUCTURE NINE FEET IN HEIGHT WOULD BE SUFFICIENT TO MEET BAT TREATMENT REQUIREMENTS.

ARARS IDENTIFIED FOR ALTERNATIVES 3A AND 3B ALSO APPLY TO ALTERNATIVE 4A. IN ADDITION, ALTERNATIVE 4A WOULD COMPLY WITH CHAPTER 30, WISCONSIN STATUTES, WHICH SPECIFIES PERMIT REQUIREMENTS FOR NEW CONSTRUCTION THAT MAY IMPACT NAVIGABLE WATERS IN THE STATE OF WISCONSIN.

ESTIMATED CAPITAL COSTS FOR IMPLEMENTATION OF ALTERNATIVE 4A WOULD TOTAL \$510,000; ESTIMATED YEARLY OPERATION AND MAINTENANCE COSTS WOULD TOTAL \$200,000 FOR THE FIRST YEAR AND \$142,000 FOR EACH YEAR THEREAFTER. THE 30-YEAR PRESENT WORTH OF ALTERNATIVE 4A WOULD EQUAL APPROXIMATELY \$1.9 MILLION. THESE COST ESTIMATES DO NOT INCLUDE THE PURCHASE OR LEASE OF ANY LAND REQUIRED TO ACCESS LAKE HALLIE. AS WITH ALTERNATIVES 3A AND 3B, ADDITIONAL TREATMENT OF CONTAMINATED GROUNDWATER WOULD INCREASE CAPITAL COSTS AND OPERATION AND MAINTENANCE COSTS.

ALTERNATIVE 4B - GROUNDWATER COLLECTION, ON-SITE TREATMENT BY AIR STRIPPING TOWER AND DISCHARGE TO LAKE HALLIE VIA INSTALLED PIPE

UNDER THIS ALTERNATIVE, GROUNDWATER WOULD BE COLLECTED BY THE PREVIOUSLY DESCRIBED EXTRACTION SYSTEM, TREATED IN AN ON-SITE AIR STRIPPING TOWER, AND DISCHARGED TO LAKE HALLIE THROUGH THE DEDICATED PIPE DESCRIBED UNDER ALTERNATIVE 4A. THE GROUNDWATER RECOVERED AT THE SOUTHWEST PORTION OF THE SITE WOULD BE PUMPED APPROXIMATELY 5,000 FEET TO THE MELBY ROAD DISPOSAL AREA. THE COMBINED FLOW FROM ALL EXTRACTION WELLS WOULD BE TREATED IN AN ON-SITE AIR STRIPPING TOWER PRIOR TO DISCHARGE TO LAKE HALLIE THROUGH THE DEDICATED PIPE. LOCATING THE AIR STRIPPER ON SITE WOULD REQUIRE INSTALLATION OF A PUMP STATION TO CONVEY THE TREATED GROUNDWATER TO THE LAKE.

OPERATION AND MAINTENANCE OF THE TREATMENT SYSTEM WOULD INCLUDE ROUTINE MAINTENANCE OF THE PUMPS, FANS AND ELECTRICAL SYSTEMS, AND REPLACEMENT OF THE AIR STRIPPER PACKING, WHICH WOULD BE APPROPRIATELY DISPOSED IN A PROPERLY DESIGNED AND APPROVED LANDFILL.

AS WITH ALTERNATIVE 4B, EASEMENTS WOULD LIKELY BE NECESSARY AND/OR LAND PURCHASED TO INSTALL THE PIPELINE TO LAKE HALLIE. IN ADDITION, THE LAKE HALLIE SHORELINE IS PRIVATELY OWNED AT THE PROPOSED OUTFALL LOCATION, THEREFORE IT WOULD ALSO BE NECESSARY TO OBTAIN RIGHTS TO THE SHORELINE. LONG-TERM MONITORING WOULD BE REQUIRED TO MEASURE PROGRESS AND PERFORMANCE OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, VERIFY COMPLETENESS OF CONTAMINANT PLUME CAPTURE, DETERMINE THE NEED FOR ANY ADDITIONAL TREATMENT OF EXTRACTED GROUNDWATER, AND MONITOR COMPLIANCE WITH WPDES PERMIT REQUIREMENTS FOR DISCHARGE OF TREATED GROUNDWATER TO THE CHIPPEWA RIVER.

ALTERNATIVE 4B WOULD COMPLY WITH ALL IDENTIFIED ARARS, WHICH ARE IDENTICAL TO THOSE STATED FOR ALTERNATIVE 4A.

ESTIMATED CAPITAL COSTS FOR IMPLEMENTATION OF ALTERNATIVE 4B WOULD TOTAL \$572,000; ESTIMATED YEARLY OPERATION AND MAINTENANCE COSTS WOULD TOTAL \$216,000 FOR THE FIRST YEAR AND \$144,000 FOR EACH YEAR THEREAFTER. THE 30-YEAR PRESENT WORTH OF ALTERNATIVE 4A WOULD EQUAL APPROXIMATELY \$2 MILLION. THESE COSTS ESTIMATES DO NOT INCLUDE THE PURCHASE OR LEASE OF ANY LAND REQUIRED TO ACCESS LAKE HALLIE. AS WITH OTHER ALTERNATIVES INVOLVING REMEDIAL ACTION, ADDITIONAL TREATMENT OF CONTAMINATED GROUNDWATER WOULD INCREASE CAPITAL COSTS AND OPERATION AND MAINTENANCE COSTS.

ALTERNATIVE 5 - GROUNDWATER COLLECTION, ON SITE TREATMENT BY AIR STRIPPING TOWER AND ON-SITE RECHARGE

UNDER THIS ALTERNATIVE, THE SAME SERIES OF GROUNDWATER EXTRACTION WELLS PREVIOUSLY DESCRIBED WOULD COLLECT CONTAMINATED GROUNDWATER FROM THE MELBY ROAD DISPOSAL AREA AND THE SOUTHWESTERN PORTION OF THE SITE. AN AIR

STRIPPING TOWER WOULD BE CONSTRUCTED IN THE VICINITY OF LAGOONS 3 AND 4. GROUNDWATER COLLECTED FROM THE SOUTHWESTERN PORTION OF THE SITE AND THE MELBY ROAD DISPOSAL AREA WOULD BE PUMPED APPROXIMATELY 4,000 FEET AND 1,500 FEET, RESPECTIVELY, TO THE AIR STRIPPER FOR TREATMENT. THE TREATED WATER WOULD THEN BE PUMPED TO LAGOONS 3 AND/OR 4 WHICH WOULD SERVE AS GROUNDWATER RECHARGE BASINS.

OPERATION AND MAINTENANCE OF THE TREATMENT SYSTEM WOULD INCLUDE ROUTINE MAINTENANCE OF THE PUMPS, FANS AND ELECTRICAL SYSTEMS, AND REPLACEMENT OF THE AIR STRIPPER PACKING, WHICH WILL BE APPROPRIATELY DISPOSED IN A PROPERLY DESIGNED AND APPROVED LANDFILL.

LONG-TERM MONITORING WOULD BE REQUIRED TO MEASURE PROGRESS AND PERFORMANCE OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, VERIFY COMPLETENESS OF CONTAMINANT PLUME CAPTURE, DETERMINE THE NEED FOR ANY ADDITIONAL TREATMENT OF EXTRACTED GROUNDWATER, AND MONITOR COMPLIANCE WITH WPDES PERMIT REQUIREMENTS FOR DISCHARGE OF TREATED GROUNDWATER TO THE RECHARGE LAGOONS.

ALTERNATIVE 5 WOULD COMPLY WITH ALL IDENTIFIED ARARS WHICH ARE THE SAME AS THOSE IDENTIFIED FOR ALTERNATIVES 3A AND 3B, EXCEPT FOR THOSE APPLICABLE TO THE POINT OF DISCHARGE. SINCE EXTRACTED AND TREATED GROUNDWATER WILL BE RETURNED TO THE SOIL SURFACE FOR INFILTRATION AND PERCOLATION TO THE WATER TABLE, THE CLEANUP LEVELS FOR CONTAMINANTS OF CONCERN IN THE TREATED GROUNDWATER ARE THE WISCONSIN PREVENTIVE ACTION LIMITS, (PALS), AS DEFINED IN CHAPTER NR 140, WAC, WHICH ARE MORE STRINGENT THAN SURFACE WATER QUALITY- BASED CRITERIA.

ESTIMATED CAPITAL COSTS FOR IMPLEMENTATION OF ALTERNATIVE 5 WOULD TOTAL \$373,000; ESTIMATED YEARLY OPERATION AND MAINTENANCE COSTS WOULD TOTAL \$186,000 FOR THE FIRST YEAR AND \$125,000 FOR EACH YEAR THEREAFTER. THE 30-YEAR PRESENT WORTH OF ALTERNATIVE 5 WOULD EQUAL APPROXIMATELY \$1.61 MILLION. AS WITH OTHER ALTERNATIVES INVOLVING REMEDIAL ACTION, PRETREATMENT OF CONTAMINATED GROUNDWATER WOULD INCREASE CAPITAL COSTS AND OPERATION AND MAINTENANCE COSTS.

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VIII. SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

IN ORDER TO DETERMINE THE MOST APPROPRIATE ALTERNATIVE FOR THIS INTERIM REMEDIAL ACTION THAT, TO THE MAXIMUM EXTENT PRACTICABLE, IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT, ATTAINS ARARS, IS COST-EFFECTIVE, AND UTILIZES PERMANENT SOLUTIONS AND TREATMENT TECHNOLOGIES, THE REMEDIAL ALTERNATIVES DEVELOPED IN THE PFS HAVE BEEN EVALUATED AND COMPARED USING THE NINE CRITERIA, AS DETERMINED TO BE APPLICABLE TO THIS INTERIM ACTION, SET FORTH IN SECTION 300.430(E)(9)(III) OF THE NATIONAL CONTINGENCY PLAN (NCP) AND SECTION 121 OF CERCLA (CLEANUP STANDARDS). THE NINE CRITERIA AND A BRIEF DESCRIPTION OF EACH IS LISTED BELOW.

- * OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT ADDRESSES WHETHER OR NOT A REMEDY PROVIDES ADEQUATE PROTECTION AND DESCRIBES HOW RISKS POSED THROUGH EACH EXPOSURE PATHWAY ARE ELIMINATED, REDUCED OR CONTROLLED BY MEANS OF TREATMENT, ENGINEERING CONTROLS, OR INSTITUTIONAL CONTROLS.
- * COMPLIANCE WITH ARARS ADDRESSES WHETHER OR NOT A REMEDY WILL MEET ALL OF THE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS OF OTHER FEDERAL AND STATE ENVIRONMENTAL STATUTES AND/OR PROVIDE GROUNDS FOR INVOKING A WAIVER.
- * LONG-TERM EFFECTIVENESS AND PERMANENCE REFERS TO THE ABILITY OF A REMEDY TO MAINTAIN RELIABLE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT OVER TIME ONCE CLEANUP GOALS ARE ACHIEVED.
- * REDUCTION OF TOXICITY, MOBILITY, OR VOLUME REFERS TO THE PREFERENCE FOR A REMEDY THAT USES TREATMENT TO REDUCE HEALTH HAZARDS, CONTAMINANT MOVEMENT OR THE QUANTITY OF CONTAMINANTS AT THE SITE.

- * SHORT-TERM EFFECTIVENESS ADDRESSES THE ABILITY OF A REMEDY TO PROVIDE RELIABLE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT DURING THE PERIOD OF TIME NEEDED TO ACHIEVE PROTECTION, AND ANY ADVERSE IMPACT ON HUMAN HEALTH AND THE ENVIRONMENT THAT MAY BE POSED DURING THE CONSTRUCTION AND IMPLEMENTATION PERIOD UNTIL CLEANUP GOALS ARE ACHIEVED.
- * IMPLEMENTABILITY IS THE TECHNICAL AND ADMINISTRATIVE FEASIBILITY OF A REMEDY, INCLUDING THE AVAILABILITY OF MATERIALS AND SERVICES NEEDED TO IMPLEMENT A PARTICULAR OPTION.
- * COST INCLUDES ESTIMATED CAPITAL AND OPERATION AND MAINTENANCE COSTS, ALSO EXPRESSED AS NET PRESENT WORTH COSTS.
- * STATE ACCEPTANCE INDICATES WHETHER, BASED ON ITS REVIEW OF THE FS AND PROPOSED PLAN, THE STATE CONCURS, OPPOSES OR HAS NO COMMENT ON THE PREFERRED ALTERNATIVE.
- * COMMUNITY ACCEPTANCE SUMMARIZES THE PUBLIC'S GENERAL RESPONSE TO THE ALTERNATIVES DESCRIBED IN THE PROPOSED PLAN AND IN THE RI/FS, BASED ON PUBLIC COMMENTS RECEIVED. PUBLIC COMMENTS, AND THE AGENCY'S RESPONSE TO THESE COMMENTS, ARE PRESENTED IN THE RESPONSIVENESS SUMMARY ATTACHED TO THE ROD.

A SUMMARY OF THE EVALUATION FOR EACH ALTERNATIVE IS PRESENTED IN TABLE 6. FOLLOWING THE INDIVIDUAL EVALUATIONS, ALTERNATIVES WERE COMPARED IN ORDER TO IDENTIFY THE ALTERNATIVE PROVIDING THE BEST BALANCE AMONG THOSE CRITERIA THAT ARE APPLICABLE TO THE INTERIM REMEDIAL ACTION. THE RESULTS OF THE COMPARISON ARE DISCUSSED BELOW.

A. THRESHOLD CRITERIA

THE FIRST TWO CRITERIA OF THE NCP--OVERALL PROTECTION AND ARARS COMPLIANCE--ARE THE TWO MOST IMPORTANT CRITERIA. THEY ARE STATUTORY REQUIREMENTS THAT MUST BE SATISFIED BY ANY ALTERNATIVE IN ORDER FOR IT TO BE ELIGIBLE FOR SELECTION. THESE TWO CRITERIA ARE DISCUSSED BELOW.

1. OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

ALTERNATIVE 1 DOES NOT ADDRESS CURRENT AND FUTURE POTENTIAL HEALTH RISKS OR ENVIRONMENTAL DEGRADATION ATTRIBUTABLE TO CONTAMINATION OF GROUNDWATER FROM ON-SITE SOURCE AREAS. IN THE ABSENCE OF ANY CONTROLS, GROUNDWATER CONTAINING VOCs ABOVE HEALTH-BASED LEVELS, AND MCLs AND WISCONSIN ESS WOULD CONTINUE TO MIGRATE UNIMPEDED OFF SITE. BECAUSE THE NO ACTION ALTERNATIVE DOES NOT SATISFY THIS THRESHOLD CRITERION OF PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT, IT IS ELIMINATED FROM FURTHER CONSIDERATION.

UNDER THE REMAINING ALTERNATIVES, OFF-SITE MOVEMENT OF CONTAMINATED GROUNDWATER WOULD BE PREVENTED THROUGH THE PLACEMENT OF EXTRACTION WELLS AT AND IMMEDIATELY DOWNGRADIENT OF THE MELBY ROAD DISPOSAL AREA AND LAGOON NO. 1 AND DITCH NO. 3 IN THE SOUTHWESTERN PORTION OF THE SITE. ALTERNATIVES 2, 3A, 3B, 4A, 4B AND 5 EMPLOY THE SAME SERIES OF GROUNDWATER EXTRACTION WELLS; HOWEVER, TREATMENT OPTIONS BETWEEN THE ALTERNATIVES VARY. CONTAMINATED GROUNDWATER WOULD BE CAPTURED AT THE SOURCE AREAS AND DEGRADATION WOULD BE REDUCED DOWNGRADIENT OF THE SOURCE AREAS. UNTIL IMPLEMENTATION OF THE ALTERNATE DRINKING WATER SUPPLIES FOR THE AFFECTED AREA IS COMPLETED, CONTAMINATED GROUNDWATER CONTINUES TO POSE POTENTIAL RISKS TO HUMAN HEALTH UNDER EXISTING AREA DRINKING WATER SUPPLY CONDITIONS. FREQUENT MONITORING WILL BE CONDUCTED TO ENSURE CONTAMINANT PLUME CAPTURE AND CONTINUED PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AT AND BEYOND SOURCE AREAS. IT IS EMPHASIZED THAT THIS INTERIM REMEDIAL ACTION DOES NOT ADDRESS OFF-SITE GROUNDWATER CONTAMINATION OR ON-SITE WASTE AREAS AND CONTAMINATED SOILS.

2. COMPLIANCE WITH ARARS

AS AN INTERIM ACTION, PURSUANT TO THE NCP, A LIMITED NUMBER OF ARARS APPLY. THE OBJECTIVE OF THIS INTERIM ACTION IS PLUME CONTAINMENT BY MEANS OF GROUNDWATER EXTRACTION AND TREATMENT AT THE MELBY ROAD DISPOSAL AREA AND THE SOUTHWESTERN PORTION OF THE SITE. LONG-TERM CLEANUP GOALS FOR GROUNDWATER ARE THE WISCONSIN PALS, WHICH WILL BE ADDRESSED IN THE FINAL RESPONSE ACTION FOR THE FACILITY.

CHAPTER NR 140, WAC, ESTABLISHES THE RANGE OF RESPONSE ACTIONS THE STATE MAY REQUIRE IF A GROUNDWATER ENFORCEMENT STANDARD IS ATTAINED OR EXCEEDED, AND IS APPLICABLE TO THIS INTERIM ACTION. TCE, TCA AND PCE ARE PRESENT ABOVE WISCONSIN ESS IN ON-SITE MONITORING WELLS AT THE MELBY ROAD DISPOSAL AREA AND THE SOUTHWESTERN PORTION OF THE SITE.

TECHNOLOGY-BASED OR WATER QUALITY-BASED EFFLUENT LIMITATIONS CAN BE MET BY ALL THE ALTERNATIVES, WITH THE EXCEPTION OF THE NO ACTION ALTERNATIVE. REQUIREMENTS FOR DISCHARGE OF TREATED CONTAMINATED GROUNDWATER TO THE CHIPPEWA RIVER (ALTERNATIVES 3A AND 3B) OR LAKE HALLIE (ALTERNATIVES 4A AND 4B) INCLUDE WATER QUALITY-BASED LIMITS AND RECOMMENDATIONS SPECIFIED BY WDNR IN ACCORDANCE WITH CHAPTERS NR 102, 104, 105, 106 AND 207, WAC. ANY BAT ACHIEVABLE LIMITS AND REQUIREMENTS AS DETERMINED BY WDNR IN ACCORDANCE WITH CHAPTER NR 220, WAC MUST ALSO BE SATISFIED. THE MORE STRINGENT OF EITHER THE WATER-QUALITY BASED LIMITS OR THE BAT REQUIREMENTS ARE APPLICABLE. BIOASSAYS MAY BE REQUIRED.

CHAPTER NR 112, WAC, ESTABLISHES UNIFORM AND MINIMUM STANDARDS FOR THE CONSTRUCTION AND MAINTENANCE OF HIGH CAPACITY WATER SYSTEMS WHICH WILL APPLY TO THE GROUNDWATER EXTRACTION SYSTEM UNDER EACH OF THE ALTERNATIVES.

CHAPTER NR 141, WAC, ESTABLISHES MINIMUM DESIGN, INSTALLATION AND CONSTRUCTION STANDARDS FOR GROUNDWATER MONITORING WELLS AND WOULD APPLY TO THE LONG-TERM MONITORING PROGRAM ASSOCIATED WITH EACH OF THE ALTERNATIVES.

AS AN OFF-SITE ACTION, A WPDES PERMIT WOULD BE REQUIRED FOR DISCHARGE OF TREATED GROUNDWATER TO THE CHIPPEWA RIVER (ALTERNATIVES 3A AND 3B) OR LAKE HALLIE (ALTERNATIVES 4A AND 4B). WPDES GENERAL PERMITS SPECIFY A LIMIT OF 0.1 UG/L (PPB) FOR POLYNUCLEAR AROMATIC HYDROCARBONS. IF THAT NUMBER IS EXCEEDED IN THE EFFLUENT, A SPECIFIC PERMIT WOULD BE REQUIRED WHICH GENERALLY TAKES MORE TIME TO ISSUE THAN A GENERAL PERMIT. FOR DISCHARGES TO GROUNDWATER (ALTERNATIVE 5), TREATED EFFLUENT SHOULD BE EITHER AT OR BELOW NR 140 PALS OR MEET BAT, WHICHEVER IS THE MORE RESTRICTIVE.

UNDER ALTERNATIVES 4A AND 4B, INSTALLATION OF DEDICATED PIPING FROM THE SITE TO LAKE HALLIE OR THE CHIPPEWA RIVER WOULD COMPLY WITH CHAPTER 30, WISCONSIN STATUTES, WHICH SPECIFIES PERMIT REQUIREMENTS FOR NEW CONSTRUCTION WHICH MAY IMPACT NAVIGABLE WATERS IN THE STATE OF WISCONSIN.

BASED ON OBSERVED CONCENTRATIONS OF CONTAMINANTS IN GROUNDWATER AND EXPECTED REMOVAL EFFICIENCIES THROUGH TREATMENT BY EITHER CASCADE AERATION OR AIR STRIPPING, AIR EMISSIONS WOULD COMPLY WITH THE WISCONSIN'S AIR QUALITY STANDARDS FOR HAZARDOUS POLLUTANTS PURSUANT TO CHAPTER NR 445, WAC.

UNDER ALTERNATIVE 2, EXTRACTED GROUNDWATER DISCHARGED TO THE EAU CLAIRE POTW WOULD COMPLY WITH LOCAL INFLUENT LIMITS ESTABLISHED UNDER EAU CLAIRE'S PRETREATMENT PROGRAM. THE CITY OF EAU CLAIRE IS RESPONSIBLE FOR IMPLEMENTING A PRETREATMENT PROGRAM IN ACCORDANCE WITH 40 CFR PART 403 OF THE CLEAN WATER ACT. THE PRETREATMENT PROGRAM REQUIRES A MUNICIPALITY TO ESTABLISH NUMERICAL LIMITS FOR DISCHARGES INTO THE POTW FROM USERS OF THE SYSTEM. THESE LIMITS WOULD APPLY TO CONTAMINATED GROUNDWATER DISCHARGED DIRECTLY TO A SANITARY SEWER AND DETERMINE THE NEED FOR ANY PRETREATMENT.

(ANY FUTURE OFF-SITE REMEDY(IES) WOULD COMPLY WITH US EPA'S POLICY REGARDING REMEDIES.)

B. PRIMARY BALANCING CRITERIA

FIVE PRIMARY BALANCING CRITERIA ARE USED TO IDENTIFY MAJOR TRADE-OFFS BETWEEN THE REMEDIAL ALTERNATIVES WHICH SATISFY THE TWO THRESHOLD CRITERIA. THESE TRADE-OFFS ARE ULTIMATELY BALANCED TO IDENTIFY THE PREFERRED ALTERNATIVE AND TO SELECT THE FINAL REMEDY.

1. LONG-TERM EFFECTIVENESS AND PERMANENCE

WITHIN THE LIMITED SCOPE OF THIS INTERIM REMEDIAL ACTION, A PROPERLY DESIGNED AND OPERATED EXTRACTION SYSTEM, AS PROVIDED BY THE REMAINING ALTERNATIVES, WOULD PREVENT OFF-SITE MOVEMENT OF CONTAMINATED GROUNDWATER INDEFINITELY FROM THE MELBY ROAD DISPOSAL AREA AND THE SOUTHWESTERN PORTION OF THE SITE. GROUNDWATER CLEANUP GOALS MAY BE ACHIEVED AT AND BEYOND SOURCE AREAS OVER AN EXTENDED PERIOD OF TIME; HOWEVER SOURCE AREAS REMAIN ON SITE AND CONTAMINATED GROUNDWATER OFF SITE WOULD NOT BE CAPTURED BY THE EXTRACTION SYSTEM. THIS INTERIM ACTION, IN CONJUNCTION WITH A FINAL CLEANUP PLAN FOR THE SITE THAT ADDRESSES SOURCE AREAS AND OFF-SITE GROUNDWATER, WOULD OFFER LONG-TERM EFFECTIVENESS AND PERMANENCE.

2. REDUCTION IN TOXICITY, MOBILITY OR VOLUME

BECAUSE THIS ACTION DOES NOT CONSTITUTE THE FINAL REMEDY FOR THE FACILITY, THE STATUTORY PREFERENCE FOR REMEDIES THAT EMPLOY TREATMENT THAT REDUCES TOXICITY, MOBILITY, OR VOLUME AS A PRINCIPLE ELEMENT WILL BE ADDRESSED BY THE FINAL RESPONSE ACTION. THIS INTERIM ACTION DOES NOT SIGNIFICANTLY REDUCE THE TOXICITY, MOBILITY OR VOLUME OF HAZARDOUS SUBSTANCES AT THE FACILITY.

3. SHORT-TERM EFFECTIVENESS

EACH OF THE ALTERNATIVES IS EXPECTED TO BE PROTECTIVE OF THE COMMUNITY AND SITE WORKERS DURING CONSTRUCTION, IMPLEMENTATION AND OPERATION OF THE REMEDIAL ACTION.

DURING THE INSTALLATION OF THE GROUNDWATER EXTRACTION WELLS, WORKERS MUST COMPLY WITH THE APPROVED HEALTH AND SAFETY PLAN FOR THE SITE TO MINIMIZE POTENTIAL EXPOSURE TO SITE CONTAMINANTS. ALL EXTRACTION WELLS WILL BE LOCATED ON SITE AND POSE NO RISK TO THE COMMUNITY DURING INSTALLATION. FOR THE REMAINING COMPONENTS OF ALTERNATIVES 2, 3A, 3B 4A, 4B AND 5, WORKERS WILL BE SUBJECT TO THE NORMAL AND CUSTOMARY RISKS ASSOCIATED WITH CONSTRUCTION, BUT TO VARYING DEGREES FOR EACH OF THE ALTERNATIVES. ALTERNATIVES 4A AND 4B REQUIRE THE GREATEST AMOUNT OF CONSTRUCTION AND POTENTIAL DISRUPTION TO THE COMMUNITY DUE TO THE INSTALLATION OF APPROXIMATELY ONE MILE OF UNDERGROUND PIPE FROM THE SITE TO LAKE HALLIE.

IMPLEMENTATION OF ALTERNATIVE 2 WOULD REQUIRE THE INSTALLATION OF APPROXIMATELY 1,600 FEET OF PIPE FROM THE SOURCE AREAS TO THE NEAREST SANITARY SEWER LINES, WHICH ARE LOCATED ON SITE. STORM SEWERS REQUIRED FOR THE IMPLEMENTATION OF ALTERNATIVES 3A AND 3B ARE ALSO LOCATED ON SITE AND WOULD REQUIRE INSTALLING APPROXIMATELY 2,100 FEET OF PIPE BETWEEN THE RESPECTIVE EXTRACTION SYSTEMS, TREATMENT SYSTEMS AND STORM SEWERS. IT IS ASSUMED THAT THESE SANITARY SEWERS AND STORM SEWERS WILL BE OF SUFFICIENT SIZE TO ADEQUATELY RECEIVE AND TRANSPORT THE COLLECTED GROUNDWATER FROM THE EXTRACTION SYSTEM. IF ADDITIONAL OFF-SITE SANITARY AND/OR STORM SEWER CAPACITY IS NEEDED, SOME DISRUPTION TO THE COMMUNITY MAY OCCUR DURING THE PROCESS OF OBTAINING ACCESS TO THE SEWERS.

THROUGH TREATMENT OF GROUNDWATER UNDER ALTERNATIVES 3A, 3B AND 4A, 4B AND 5, VOCS WILL BE RELEASED TO THE AIR. BASED ON VOC CONCENTRATIONS IN GROUNDWATER AND ESTIMATED REMOVAL EFFICIENCIES OF EITHER CASCADE AERATION OR AIR STRIPPING, VOC EMISSIONS TO THE ATMOSPHERE WOULD COMPLY WITH AMBIENT AIR QUALITY STANDARDS. FURTHERMORE, ON-SITE TREATMENT SYSTEMS WOULD BE LOCATED AWAY FROM THE SURROUNDING COMMUNITY AND ACTIVE AREAS OF THE NPI SITE.

THE REMEDIAL OBJECTIVE FOR THIS INTERIM ACTION IS TO PREVENT THE OFF-SITE MOVEMENT OF CONTAMINATED GROUNDWATER FROM THE MELBY ROAD DISPOSAL AREA AND SOUTHWESTERN PORTIONS OF THE SITE. IMPLEMENTATION OF ANY OF THE ALTERNATIVES WILL ACCOMPLISH THIS OBJECTIVE ONCE A SUFFICIENT CAPTURE ZONE HAS BEEN ESTABLISHED AND MAINTAINED BY PUMPING THE EXTRACTION WELLS.

NONE OF THE ALTERNATIVES IS EXPECTED TO HAVE ADVERSE ENVIRONMENTAL IMPACTS. THERE IS A POTENTIAL IMPACT ASSOCIATED WITH DISCHARGING WATER TO THE CHIPPEWA RIVER OR LAKE HALLIE. THIS POTENTIAL IS MITIGATED WITH TREATMENT OF THE EXTRACTED GROUNDWATER PRIOR TO DISCHARGE, PROVIDED THE TREATMENT SYSTEM IS MAINTAINED IN PROPER WORKING CONDITION AND IS IN COMPLIANCE WITH DISCHARGE LIMITS. EFFLUENT LIMITS REQUIRED BY WDNR ARE DESIGNED TO PROTECT AQUATIC LIFE IN THE RIVER AND MONITORING WILL VERIFY COMPLIANCE WITH DISCHARGE LIMITS. DISCHARGE OF UNTREATED GROUNDWATER TO THE EAU CLAIRE POTW WOULD REQUIRE COMPLIANCE WITH INFLUENT LIMITS ESTABLISHED BY EAU CLAIRE'S PRETREATMENT PROGRAM.

4. IMPLEMENTABILITY

TECHNICALLY, ALL OF THE ALTERNATIVES ARE EASILY IMPLEMENTABLE. MATERIALS AND SERVICES REQUIRED TO INSTALL GROUNDWATER EXTRACTION SYSTEMS, CONSTRUCT AN AIR STRIPPING TOWER OR CASCADE AERATION SYSTEM AND INSTALL THE NECESSARY PIPING TO THE POINT OF DISCHARGE ARE WIDELY AND READILY AVAILABLE. IMPLEMENTATION OF ALTERNATIVES 4A AND 4B WOULD REQUIRE BORING AND JACKING TO INSTALL PIPING FROM THE SITE TO LAKE HALLIE AS THE PIPE WOULD CROSS A RAILROAD, HIGHWAY AND SEVERAL LOCAL ROADS.

THE LENGTH OF OPERATION OF ANY OF THE ALTERNATIVES IS DIFFICULT TO PREDICT UNTIL PERFORMANCE IS MEASURED AND EVALUATED. THEREFORE, ROUTINE MAINTENANCE BY QUALIFIED PERSONNEL WILL BE NECESSARY.

ALTERNATIVES 2, 3A AND 3B PRESENT POTENTIALLY SIGNIFICANT ADMINISTRATIVE OBSTACLES TO IMPLEMENTATION. THE CITY OF EAU CLAIRE IMPOSED SEVERAL CONDITIONS FOR POTW ACCEPTANCE OF GROUNDWATER EXTRACTED DURING THE AQUIFER PUMPING TEST CONDUCTED BY NPI IN MID-JULY 1991. THE CITY HAS ALSO DETERMINED THAT IT IS UNABLE TO ACCEPT EXTRACTED GROUNDWATER FOR TREATMENT AT ITS POTW ON A LONG-TERM BASIS. FOR THIS REASON ALTERNATIVE 2 IS ELIMINATED FROM FURTHER CONSIDERATION.

THE USE OF EAU CLAIRE STORM SEWERS TO TRANSPORT TREATED GROUNDWATER TO THE CHIPPEWA RIVER WILL REQUIRE COORDINATION WITH AND APPROVAL FROM THE CITY. BEFORE THE CITY CAN MAKE A FINAL DECISION, IT REQUESTED THAT NPI PROVIDE INFORMATION ON FLOW RATES, THE POINT OF DISCHARGE TO THE STORM SEWER(S), AND HOW THE SYSTEM WILL BE DESIGNED TO SHUT DOWN DURING PERIODS OF HEAVY FLOW IN THE STORM SEWERS. ANY RESTRICTIONS OR CONDITIONS IMPOSED BY EAU CLAIRE MUST NOT IMPACT IMPLEMENTATION IN A MANNER THAT JEOPARDIZES ACHIEVEMENT OF REMEDIAL ACTION OBJECTIVES. CORRESPONDENCE BETWEEN NPI AND THE CITY INDICATES THE LIKELIHOOD OF A FAVORABLE RESOLUTION TO THE CITY'S CONCERNS. THE CITY HAS REQUESTED THAT THE EXTRACTION SYSTEM BE DESIGNED TO SHUT DOWN DURING HEAVY PRECIPITATION WHEN THE STORM SEWERS REACH CAPACITY FROM STORM RUNOFF. SUCH SAFEGUARDS CAN EASILY BE INCORPORATED INTO THE DESIGN OF THE EXTRACTION SYSTEM.

ADMINISTRATIVE ISSUES MUST ALSO BE RESOLVED BEFORE ALTERNATIVES 4A AND 4B WOULD BE IMPLEMENTED. THE INSTALLATION OF PIPE FROM THE SITE TO LAKE HALLIE WOULD REQUIRE ACCESS AGREEMENTS WITH PROPERTY OWNERS, PUBLIC AND PRIVATE, AND/OR PURCHASE OF LAND. THIS MAY TAKE SOME EFFORT TO ARRANGE OR MAY RENDER THIS ALTERNATIVE UNIMPLEMENTABLE.

5. COST

EACH OF THE ALTERNATIVES HAVE THE ABILITY TO ACHIEVE THE OBJECTIVES OF THIS INTERIM ACTION WITH PROPER CONSTRUCTION, IMPLEMENTATION, AND OPERATION AND MAINTENANCE. THERE ARE COMMON ELEMENTS TO ALL THE ALTERNATIVES WHICH INCLUDE EXTRACTION WELLS AND PUMPS, PIPING TO POINT(S) OF TREATMENT AND DISCHARGE, AND LONG-TERM MONITORING. VARIATIONS IN TREATMENT METHODOLOGIES AND OPERATION AND MAINTENANCE REQUIREMENTS ACCOUNT FOR THE COST RANGES BETWEEN THE ALTERNATIVES.

ALTERNATIVES 4A AND 4B HAVE THE HIGHEST ESTIMATED CONSTRUCTION COSTS (\$510,000 AND \$572,000, RESPECTIVELY) WHICH IS ATTRIBUTABLE TO THE COSTS ASSOCIATED WITH LAYING PIPE FROM THE NPI SITE TO THE LAKE HALLIE DISCHARGE POINT. THE COST OF THE AIR STRIPPING TOWER IS REFLECTED IN THE SLIGHTLY HIGHER CONSTRUCTION COSTS FOR ALTERNATIVE 4B. OPERATION AND MAINTENANCE COSTS ARE ALSO SLIGHTLY HIGHER THAN THE OTHER ALTERNATIVES AND IS DUE TO THE ADDED REQUIREMENTS FOR MAINTAINING THE SYSTEM BETWEEN THE SITE AND LAKE HALLIE. AS A GENERAL NOTE OF COMPARISON, ALL ALTERNATIVES INVOLVING AIR STRIPPING REQUIRE MORE OPERATION AND MAINTENANCE THAN THE LESS COMPLICATED CASCADE AERATION TREATMENT SYSTEM.

ALTERNATIVE 5 IS THE NEXT COSTLY ALTERNATIVE TO IMPLEMENT WITH CONSTRUCTION COSTS OF \$373,000. THIS IS PRIMARILY DUE TO THE EXTRA PIPING REQUIRED TO TRANSPORT EXTRACTED GROUNDWATER FROM THE MELBY ROAD DISPOSAL AREA AND SOUTHWESTERN PORTION OF THE SITE TO THE AIR STRIPPER WHICH WOULD BE LOCATED IN THE CENTRAL PORTION OF THE SITE. AGAIN, SLIGHTER HIGHER OPERATION AND MAINTENANCE COSTS REFLECT THE USE OF AN AIR STRIPPER AS OPPOSED TO CASCADE AERATION.

WITH THE EXCEPTION OF THE TRANSPORT MECHANISM FOLLOWING TREATMENT OF EXTRACTED GROUNDWATER AND THE RECEIVING WATER BODY, ALTERNATIVES 3A AND 3B ARE IDENTICAL TO ALTERNATIVES 4A AND 4B. ALTERNATIVE 3A AND 3B WILL UTILIZE THE EXISTING CITY OF EAU CLAIRE STORM SEWER NETWORK TO TRANSPORT TREATED GROUNDWATER TO THE CHIPPEWA RIVER. THIS ACCOUNTS FOR THE LOWER CONSTRUCTION COSTS, \$255,000 AND \$336,000 FOR ALTERNATIVES 3A AND 3B, RESPECTIVELY, WHEN COMPARED TO ALTERNATIVES 4A AND 4B. SIMILARLY, OPERATION AND MAINTENANCE COSTS ARE

SOMEWHAT LESS.

WITH THE EXCEPTION OF THE NO ACTION ALTERNATIVE, ALTERNATIVE 2 IS THE LEAST COSTLY TO IMPLEMENT (\$194,000) AND OPERATE AND MAINTAIN BECAUSE IT USES EAU CLAIRE'S POTW FOR TREATMENT OF EXTRACTED GROUNDWATER. HOWEVER, THIS ALTERNATIVE IS NOT IMPLEMENTABLE BECAUSE OF EAU CLAIRE'S UNWILLINGNESS TO ACCEPT EXTRACTED GROUNDWATER FOR TREATMENT IN ITS POTW.

C. MODIFYING CRITERIA

1. STATE ACCEPTANCE

THE STATE OF WISCONSIN HAS BEEN AN ACTIVE AND SUPPORTING PARTICIPANT IN THE REMEDIAL PROCESS FOR THIS FACILITY. THE STATE IS A SIGNATORY TO THE RI/FS CONSENT ORDER WITH NPI AND HAS SUPPORTED PAST REMEDIAL AND ENFORCEMENT DECISIONS CONCERNING THE FACILITY. AS THE SUPPORT AGENCY, THE WDNR CONCURS WITH THE SELECTED REMEDY FOR THIS INTERIM ACTION.

2. COMMUNITY ACCEPTANCE

SECTION XI OF THIS ROD IS THE RESPONSIVENESS SUMMARY WHICH PRESENTS BACKGROUND INFORMATION ON COMMUNITY INVOLVEMENT AND CATEGORIZES THE PUBLIC COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND US EPA'S RESPONSES TO THE COMMENTS.

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IX. THE SELECTED REMEDY

SECTION 121 OF CERCLA REQUIRES THAT ALL REMEDIES FOR SUPERFUND SITES BE PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT, COMPLY WITH ARARS, BE COST-EFFECTIVE, AND UTILIZE PERMANENT SOLUTIONS AND ALTERNATE TREATMENT TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE.

US EPA AND THE STATE OF WISCONSIN BELIEVE ALTERNATIVE 3A REPRESENTS THE BEST BALANCE OF TRADEOFFS AMONG THE ALTERNATIVES EVALUATED FOR THIS INTERIM ACTION PURSUANT TO APPLICABLE NCP CRITERIA. THIS INTERIM ACTION IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT, COMPLIES WITH FEDERAL AND STATE ARARS FOR THIS LIMITED-SCOPE ACTION, AND IS COST EFFECTIVE. THIS ACTION IS INTERIM AND IS NOT INTENDED TO UTILIZE PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE. BECAUSE THIS ACTION DOES NOT CONSTITUTE THE FINAL REMEDY FOR THE FACILITY, THE STATUTORY PREFERENCE FOR TREATMENT THAT REDUCES TOXICITY, MOBILITY OR VOLUME AS A PRINCIPAL ELEMENT WILL BE ADDRESSED BY THE FINAL RESPONSE ACTION.

THE SELECTED REMEDY FOR THIS INTERIM ACTION ENTAILS:

- * INSTALLATION AND OPERATION OF GROUNDWATER EXTRACTION WELLS AT THE MELBY ROAD DISPOSAL AREA AND THE SOUTHWESTERN PORTION OF THE SITE DOWNGRAIENT OF LAGOON NO. 3;
- * TREATMENT OF EXTRACTED GROUNDWATER BY TWO INDEPENDENT CASCADE AERATION UNITS COMPRISING A 9-FOOT CONCRETE STEP STRUCTURE CONSTRUCTED ON SITE;
- * DISCHARGE OF TREATED GROUNDWATER TO THE CITY OF EAU CLAIRE STORM SEWER SYSTEM FOR TRANSPORT TO THE CHIPPEWA RIVER;
- * LONG-TERM MONITORING; AND
- * PROVISION FOR INSTALLATION OF DEDICATED PIPE BETWEEN THE SITE AND LAKE HALLIE OR THE CHIPPEWA RIVER SHOULD CONTINUED USE OF THE CITY OF EAU CLAIRE STORM SEWER SYSTEM BE PRECLUDED.

AQUIFER PUMPING TESTS WERE CONDUCTED AT THE MELBY ROAD DISPOSAL AREA DURING THE PERIOD OF JULY 16 THROUGH JULY 19, 1991 FOR PURPOSES OF EVALUATING AQUIFER CONDITIONS AND TO DEMONSTRATE GROUNDWATER CAPTURE PARAMETERS DURING SHORT-TERM PUMPING CONDITIONS. THE TWO EXISTING 5-INCH WELLS WERE USED AS THE PUMPING WELLS AND NEARBY MONITORING WELLS SERVED AS OBSERVATION WELLS DURING AND FOLLOWING THE PUMPING TESTS. ALL EXTRACTED GROUNDWATER WAS DISCHARGED TO A CITY OF EAU CLAIRE SANITARY SEWER LOCATED ON-SITE.

THE MELBY ROAD DISPOSAL AREA IS UNDERLAIN BY APPROXIMATELY 100 FEET OF GLACIAL OUTWASH CONSISTING OF SAND WITH VARYING AMOUNTS OF GRAVEL. THE LOWER 30 PERCENT OF THE SAND AND GRAVEL IS CHARACTERIZED BY UNCONFINED WATER TABLE CONDITIONS.

THREE SEPARATE TESTS WERE CONDUCTED OVER THE FOUR DAYS AND THE DATA AND SUMMARY REPORT ARE INCLUDED IN THE ADMINISTRATIVE RECORD. THE MOST CRITICAL TEST INVOLVED THE PUMPING OF BOTH 5-INCH WELLS AT 90 GPM EACH FOR SIX HOURS. THE RESULTS INDICATED THAT THE TWO WELLS PRODUCED A COMBINED CAPTURE ZONE AT LEAST 400 FEET WIDE. THE CONTINUED DRAWDOWN IN AN OBSERVATION WELL LOCATED EQUIDISTANT BETWEEN THE PUMPING WELLS INDICATED THAT THE CAPTURE ZONE WAS CONTINUING TO INCREASE.

THE PLACEMENT AND PROPOSED PUMPING RATES OF THE EXTRACTION WELLS AT THE MELBY ROAD DISPOSAL AREA ARE EXPECTED TO PROVIDE A SUFFICIENT CAPTURE ZONE TO PREVENT OFF-SITE MOVEMENT OF CONTAMINATED GROUNDWATER FROM THIS SOURCE AREA. AN ADDITIONAL TWO OR THREE 5- TO 8-INCH EXTRACTION WELLS WOULD BE INSTALLED AT THE SOUTHWESTERN PORTION OF THE SITE TO ENSURE CONTAMINANT PLUME CAPTURE IN THIS PORTION OF THE SITE. TOTAL GROUNDWATER PUMPING RATES BETWEEN THE TWO INDEPENDENT EXTRACTION SYSTEMS ARE EXPECTED TO BE 400-500 GPM. ONCE REMEDIAL ACTION IS IMPLEMENTED, AN AQUIFER PUMPING TEST WILL BE CONDUCTED AT EACH EXTRACTION SYSTEM TO VERIFY ASSUMPTIONS MADE DURING REMEDIAL DESIGN REGARDING EXTRACTION WELL PLACEMENT AND PROPOSED PUMPING RATES. THE TEST WILL ALSO DETERMINE IF SYSTEM PERFORMANCE IS CONSISTENT WITH THE REMEDIAL ACTION OBJECTIVE OF PREVENTING THE OFF-SITE MOVEMENT OF CONTAMINATED GROUNDWATER. IF NECESSARY, MODIFICATIONS TO THE EXTRACTION SYSTEM WILL BE MADE AT THIS TIME.

RECOVERED GROUNDWATER FROM THE MELBY ROAD DISPOSAL AREA WOULD BE PUMPED APPROXIMATELY 1500 FEET TO A CASCADE AERATION UNIT. THE TREATED GROUNDWATER WOULD THEN BE DISCHARGED TO AN EXISTING 12-INCH CITY OF EAU CLAIRE STORM SEWER LOCATED ON SITE. RECOVERED GROUNDWATER FROM THE SOUTHWESTERN PORTION OF THE SITE WOULD BE PUMPED APPROXIMATELY 600 FEET TO A SECOND CASCADE AERATION STRUCTURE AND DISCHARGED TO AN EXISTING 24-INCH CITY STORM SEWER, ALSO LOCATED ON SITE. BOTH STORM SEWERS WOULD THEN TRANSPORT TREATED GROUNDWATER TO THE CHIPPEWA RIVER. DISCHARGE TO THE CHIPPEWA RIVER WOULD COMPLY WITH THE CONDITIONS AND REPORTING REQUIREMENTS OF A WPDES PERMIT.

LONG-TERM MONITORING WOULD BE REQUIRED TO MEASURE PROGRESS AND PERFORMANCE OF THE GROUNDWATER EXTRACTION AND TREATMENT SYSTEM, VERIFY COMPLETENESS OF CONTAMINANT PLUME CAPTURE, DETERMINE THE NEED FOR ADDITIONAL TREATMENT OF EXTRACTED GROUNDWATER AND MONITOR COMPLIANCE WITH WPDES PERMIT REQUIREMENTS FOR DISCHARGE OF TREATED GROUNDWATER TO THE CHIPPEWA RIVER.

ADDITIONAL MONITORING WELLS WOULD BE INSTALLED AT THE MELBY ROAD DISPOSAL AREA AND THE SOUTHWESTERN PORTION OF THE SITE TO SATISFY LONG-TERM MONITORING REQUIREMENTS. DURING REMEDIAL DESIGN AND UPON IMPLEMENTATION OF REMEDIAL ACTION, GROUNDWATER WOULD BE ANALYZED FOR US EPA'S TCL AND TAL PARAMETERS FOR PURPOSES OF DETERMINING THE NEED FOR ADDITIONAL TREATMENT OF CONTAMINATED GROUNDWATER. SELECTED GROUNDWATER MONITORING WELLS WILL ALSO BE ANALYZED FOR VOCs TO EVALUATE THE IMPACT OF PLUME CONTAINMENT ON DOWNGRADE GROUNDWATER QUALITY AND COLLECT DATA IN SUPPORT OF THE FINAL RESPONSE ACTION FOR CONTAMINATED GROUNDWATER FOR THE FACILITY. THE FINAL MONITORING PROGRAM, INCLUDING NUMBER OF SAMPLES, FREQUENCY OF SAMPLING, AND ANALYTICAL PARAMETERS WILL BE APPROVED BY US EPA AS PART OF THE REMEDIAL DESIGN FOR THIS INTERIM ACTION, AND MAY BE MODIFIED, AS APPROPRIATE, DURING REMEDIAL ACTION.

IT IS RECOGNIZED THAT THE CITY OF EAU CLAIRE MAY WITHDRAW PERMISSION TO USE ITS STORM SEWER OR, IN RESPONSE TO HEAVY PRECIPITATION, REQUIRE FREQUENT AND/OR EXTENDED SHUTDOWN OF THE GROUNDWATER EXTRACTION SYSTEM. EITHER OF THE ABOVE SITUATIONS WOULD JEOPARDIZE THE ABILITY OF THIS INTERIM ACTION TO PREVENT THE OFF-SITE MOVEMENT OF CONTAMINATED GROUNDWATER. TO ENSURE CONTINUATION OF THE REMEDIAL ACTION CONSISTENT WITH THE ROLE AND SCOPE OF THIS INTERIM ACTION, US EPA WOULD REQUIRE THE INSTALLATION OF A DEDICATED PIPELINE TO EITHER LAKE HALLIE OR THE CHIPPEWA RIVER.

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X. STATUTORY DETERMINATIONS

THE SELECTED REMEDY FOR THIS INTERIM ACTION MEETS THE STATUTORY REQUIREMENTS, AS DETERMINED TO BE APPLICABLE TO THIS INTERIM ACTION, SET FORTH IN SECTION 121 OF CERCLA. PURSUANT TO SECTION 121(A-E) OF CERCLA, THE SELECTED REMEDY MUST PROTECT HUMAN HEALTH AND THE ENVIRONMENT, COMPLY WITH ARARS, BE COST EFFECTIVE, UTILIZE PERMANENT SOLUTIONS AND ALTERNATE TREATMENT TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE AND SATISFY A PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT OF THE REMEDY.

THE IMPLEMENTATION OF ALTERNATIVE 3A SATISFIES THOSE STATUTORY REQUIREMENTS THAT ARE APPLICABLE TO THIS INTERIM ACTION FOR THE FACILITY.

A. PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

THE SELECTED REMEDY REDUCES POTENTIAL RISKS FROM GROUNDWATER INGESTION AT ON-SITE SOURCES; HOWEVER, CONTAMINATED GROUNDWATER DOES NOT POSE POTENTIAL HEALTH RISKS UNDER EXISTING AREA DRINKING WATER SUPPLY CONDITIONS. THIS INTERIM ACTION MITIGATES DEGRADATION OF GROUNDWATER AT AND IMMEDIATELY DOWNGRAIDENT OF SOURCE AREAS AND PREVENTS OFF-SITE MOVEMENT BY MEANS OF PLUME CONTAINMENT. THIS INTERIM ACTION DOES NOT ADDRESS OFF-SITE CONTAMINATED GROUNDWATER OR ON-SITE SOURCE AREAS.

B. COMPLIANCE WITH ARARS

THE SELECTED REMEDY FOR THIS INTERIM ACTION WILL COMPLY WITH FEDERAL, OR MORE STRINGENT STATE, APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) LISTED BELOW.

1. CHEMICAL-SPECIFIC ARARS

CHEMICAL-SPECIFIC ARARS INCLUDE THOSE LAWS AND REQUIREMENTS THAT REGULATE THE RELEASE OF CONTAMINANTS TO THE ENVIRONMENT. THESE INCLUDE:

A. FEDERAL ARARS

SECTION 304 OF THE CLEAN WATER ACT (CWA) ESTABLISHES AMBIENT WATER QUALITY CRITERIA (AWQC) FOR PROTECTION OF HUMAN HEALTH AND AQUATIC LIFE. THE AWQC ARE CONSIDERED RELEVANT AND APPROPRIATE AT SUPERFUND SITES WHERE A RELEASE OR THE THREAT OF A RELEASE IS PRESENT OR WHEN REMEDIAL ACTIONS REQUIRE POINT SOURCE DISCHARGES TO SURFACE WATER BODIES. SINCE TREATED GROUNDWATER WILL BE DISCHARGED TO THE CHIPPEWA RIVER, AWQC ARE RELEVANT AND APPROPRIATE FOR THE DISCHARGE.

B. STATE ARARS

CHAPTER NR 105 WAC, SURFACE WATER QUALITY CRITERIA FOR TOXIC SUBSTANCES, ESTABLISHES WATER QUALITY CRITERIA AND METHODS FOR DEVELOPING CRITERIA FOR TOXIC SUBSTANCES TO PROTECT SURFACE WATERS IN THE STATE OF WISCONSIN. WISCONSIN WATER QUALITY CRITERIA ARE A COMPONENT OF SURFACE WATER QUALITY STANDARDS AND ARE APPLICABLE TO THE DISCHARGE OF TREATED GROUNDWATER TO THE CHIPPEWA RIVER AND ITS POTENTIAL IMPACT ON SURFACE WATER QUALITY.

CHAPTER NR 106 WAC, PROCEDURES FOR CALCULATING WATER QUALITY BASED EFFLUENT LIMITATIONS FOR TOXIC AND ORGANOLEPTIC SUBSTANCES DISCHARGED TO SURFACE WATER, SPECIFIES METHODS FOR CALCULATING WATER QUALITY BASED EFFLUENT LIMITATIONS AND HOW THESE LIMITATIONS WILL BE INCLUDED IN WPDES PERMITS.

CHAPTER NR 102, WAC, WATER QUALITY STANDARDS FOR WISCONSIN SURFACE WATERS AND CHAPTER NR 104, WAC, INTRASTATE WATERS-USES AND DESIGNATED STANDARDS, DESIGNATE THE USES FOR WHICH THE VARIOUS WATERS OF WISCONSIN SHALL BE MAINTAINED AND PROTECTED. THESE CHAPTERS PRESCRIBE THE WATER QUALITY REQUIRED TO SUSTAIN THE DESIGNATED USES AND INDICATE METHODS TO IMPLEMENT, ACHIEVE, AND MAINTAIN WATER QUALITY. CHAPTERS NR 102, 104 AND 105, WAC CONSTITUTE QUALITY STANDARDS FOR THE SURFACE WATERS OF WISCONSIN.

2. LOCATION-SPECIFIC ARARS

LOCATION-SPECIFIC ARARS ARE THOSE REQUIREMENTS THAT RELATE TO THE GEOGRAPHICAL LOCATION OF A SITE. NO LOCATION-SPECIFIC ARARS HAVE BEEN IDENTIFIED FOR THIS INTERIM ACTION.

3. ACTION-SPECIFIC ARARS

ACTION-SPECIFIC ARARS ARE REQUIREMENTS THAT DEFINE ACCEPTABLE TREATMENT AND DISPOSAL PROCEDURES FOR HAZARDOUS SUBSTANCES. THESE INCLUDE:

A. FEDERAL ARARS

TREATMENT OF EXTRACTED GROUNDWATER PRIOR TO DISCHARGE TO SURFACE WATER IS AN ARAR. SECTION 301(B)(2) OF THE CWA REQUIRES "APPLICATION OF THE BEST AVAILABLE TECHNOLOGY (BAT) ECONOMICALLY AND TECHNOLOGICALLY ACHIEVABLE FOR PURPOSE OF ACHIEVING THE "NATIONAL GOAL OF ELIMINATING THE DISCHARGE OF ALL POLLUTANTS...." SECTION 402(A)(1) OF THE CWA PROVIDES FOR THE ISSUANCE OF A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR THE DISCHARGE OF ANY POLLUTANT TO SURFACE WATER BODIES.

(ANY FUTURE OFF-SITE REMEDY(IES) WOULD COMPLY WITH US EPA'S POLICY CONCERNING OFF-SITE REMEDIES.)

B. STATE ARARS

IN ADDITION TO ESTABLISHING GROUNDWATER QUALITY STANDARDS FOR SUBSTANCES IN GROUNDWATER, CHAPTER NR 140, WAC, GROUNDWATER QUALITY, ESTABLISHES RANGES OF RESPONSES THE STATE MAY REQUIRE IF A GROUNDWATER ES IS ATTAINED OR EXCEEDED. THE EXCEEDENCE OF ESS FOR TCE, TCA AND PCE IN ON-SITE MONITORING WELLS TRIGGER THE ACTION-SPECIFIC REQUIREMENTS OF CHAPTER NR 140, WAC.

THE STATE OF WISCONSIN IS AUTHORIZED TO IMPLEMENT THE NPDES PROGRAM. FOR DISCHARGE OF TREATED GROUNDWATER, THE ARARS ARE DEPENDENT ON THE POINT OF DISCHARGE. SINCE THE POINT OF DISCHARGE IS THE CHIPPEWA RIVER, WHICH IS OFF-SITE, A WPDES PERMIT WOULD BE REQUIRED PURSUANT TO CHAPTER 147, WISCONSIN STATUTES.

THE BAT REQUIREMENTS OF THE CWA ARE DETERMINED BY THE STATE ON A CASE-BY-CASE BASIS PURSUANT TO CHAPTER NR 220, WAC. THE NEED FOR SPECIFIC BAT REQUIREMENTS IS DETERMINED BASED ON AN EVALUATION OF WATER QUALITY BASED LIMITS AND ON AN EVALUATION OF PROJECTIONS OF EFFLUENT QUALITY AND POLLUTANT REMOVAL EFFICIENCIES FOR A PROPOSED GROUNDWATER TREATMENT SYSTEM. WDNR HAS DETERMINED THAT CASCADE AERATION, AS SPECIFIED BY THE SELECTED REMEDY, SATISFIES THE BAT REQUIREMENTS OF THE CWA AND CHAPTER NR 220, WAC.

CHAPTER NR 445, WAC, CONTROL OF HAZARDOUS POLLUTANTS, REGULATES AIR EMISSIONS FROM TREATMENT TECHNOLOGIES AND ESTABLISHES EMISSION RATE LIMITS FOR SPECIFIC SUBSTANCES. SINCE VOCs WILL BE EMITTED THROUGH TREATMENT OF EXTRACTED GROUNDWATER BY CASCADE AERATION, CHAPTER NR 445, WAC IS AN ARAR. IF CASCADE AERATION EMISSIONS EXCEED STANDARDS, THEN EMISSION CONTROL WILL BE INCLUDED IN THE TREATMENT SYSTEM TO BRING AIR EMISSIONS INTO COMPLIANCE. HOWEVER, CONSERVATIVE ESTIMATED EMISSION RATES FROM CASCADE AERATION, BASED ON MAXIMUM OBSERVED VOC CONCENTRATIONS IN GROUNDWATER AND THE PROJECTED VOC REMOVAL EFFICIENCY OF CASCADE AERATION, ARE WELL WITHIN IDENTIFIED LIMITS.

CHAPTER NR 112, WAC, WELL CONSTRUCTION AND PUMP INSTALLATION, ESTABLISHES UNIFORM AND MINIMUM STANDARDS FOR THE CONSTRUCTION AND MAINTENANCE OF HIGH CAPACITY WATER SYSTEMS AND ARE APPLICABLE TO THE GROUNDWATER EXTRACTION SYSTEM.

CHAPTER NR 141, WAC, GROUNDWATER MONITORING WELL REQUIREMENTS, ESTABLISHES MINIMUM ACCEPTABLE STANDARDS FOR THE DESIGN, INSTALLATION, CONSTRUCTION, ABANDONMENT AND DOCUMENTATION OF GROUNDWATER MONITORING WELLS, AND ARE APPLICABLE TO THE MONITORING WELLS INSTALLED AS PART OF THE LONG-TERM MONITORING PROGRAM.

C. COST EFFECTIVENESS

COST-EFFECTIVENESS COMPARES THE EFFECTIVENESS OF AN ALTERNATIVE IN RELATION TO ITS COST OF PROTECTING HUMAN HEALTH AND THE ENVIRONMENT. WITH THE EXCEPTION OF ALTERNATIVE 2, WHICH IS NOT IMPLEMENTABLE, THE SELECTED REMEDY IS THE LEAST COSTLY ALTERNATIVE THAT SATISFIES THE OBJECTIVES OF THIS INTERIM ACTION. IT PROVIDES FOR AN APPROPRIATE LEVEL OF TREATMENT OF EXTRACTED GROUNDWATER THAT SATISFIES THE BAT REQUIREMENTS OF WISCONSIN

REGULATIONS AND UTILIZES THE EXISTING CITY OF EAU CLAIRE STORM SEWER NETWORK TO TRANSPORT TREATED GROUNDWATER TO THE CHIPPEWA RIVER.

D. UTILIZATION OF PERMANENT SOLUTIONS AND ALTERNATE TREATMENT TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE

THIS ACTION IS INTERIM AND IS NOT INTENDED TO UTILIZE PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE FOR THIS OPERABLE UNIT. THE SELECTED REMEDY REPRESENTS THE BEST BALANCE OF TRADEOFFS AMONG ALTERNATIVES WITH RESPECT TO PERTINENT CRITERIA, GIVEN THE LIMITED SCOPE OF THE ACTION.

E. PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

BECAUSE THIS ACTION DOES NOT CONSTITUTE THE FINAL REMEDY FOR THE FACILITY, THE STATUTORY PREFERENCE FOR REMEDIES THAT EMPLOY TREATMENT THAT REDUCES TOXICITY, MOBILITY OR VOLUME AS A PRINCIPAL ELEMENT WILL BE ADDRESSED BY THE FINAL RESPONSE ACTION.